War Manpower

December 8, 1943.

Miss Katherine Woodruff, Manager
U. S. Employment Service,
War Manpower Commission,
256 Main St.,
Oneonta, N. Y.

My dear Miss Woodruff:

Your letter of December 1 has been referred to the Women's Bureau.

The statistics you refer to come from the War Manpower Commission, and all estimates covering the age range "14 years and over." I presume you are acquainted with the release PM4440 which was issued September 3, 1943.

Sincerely yours,

Mary Anderson, Director.

MA/RFH/nb

DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS
WASHINGTON

December 4, 1943

To: Miss Robinson
Women's Bureau

~~Xxxxxxx~~

WOMEN'S BUREAU
DEC 6 - 1943
DEPARTMENT OF LABOR

A communication from

Katherine Woodruff
U.S.Employment Service
Oneonta, New York

is referred to your office for consideration and appropriate action, and the writer

☒ has been advised.
☐ has not been advised.

Very truly yours,

A. F. Hinrichs
Acting Commissioner of Labor Statistics

☒ letter attached.
☐ portion of letter referred for attention.

WAR MANPOWER COMMISSION
[redacted]
[redacted]
UNITED STATES EMPLOYMENT SERVICE

OFFICE OF THE
LOCAL MANAGER

256 Main Street
Oneonta, New York
Phone 2244

Mr Hamm

December 1, 1943

DEC 2 1943

Monthly Labor Review
United States Dept. of Labor
14th Street & Constitution Ave.
Washington, D. C.

WOMEN'S BUREAU
DEC 6 - 1943
DEPARTMENT OF LABOR

Dear Sir:

At the suggestion of Mr. Leonard P. Adams, Division of Program Requirements of the War Manpower Commission, we are writing for further information on an article by Mary Robinson, "Women Workers in Two Wars", in the Monthly Labor Review, October 1943.

N Y Times
6/14/43

The article states that "according to a War Manpower Commission estimate, during 1942 half a million housewives joined the wage-earning ranks. All told, in June 1943, about a third of the woman population was employed."

Would you be able to tell us what age groups of women were considered, whether a group starting with age 15 through 64 or some other range. We are interested for comparative purposes.

Very truly yours,

Katherine Woodruff

Katherine Woodruff
Manager

KW:bm

pm 4440



(9)

From Claude Watts
Manpower

TRAINING WITHIN INDUSTRY SERVICE
BUREAU OF TRAINING
WAR MANPOWER COMMISSION

CIRCULAR LETTER
November 18, 1943

TO: All District Directors

FROM: C. R. Dooley

SUBJECT: T.W.I. District Directors and Addresses
Office #3

District	District Director District Representative	Address	Telephone
1	Harry H. Kerr, Director H. K. Bragle, Rep.	Boston 8, Mass. Room 740 55 Tremont St.	Lafayette 6537
2.	A. E. Whitehill, Rep.	New Haven 10, Conn. Room 515 152 Temple St.	New Haven 6-5186
3.	S. W. Mudge, Director R. E. Collin, Rep.	New York 18, N.Y. Room 2026 11 West 42nd St.	Chickering 4-8800
5.	Glenn L. Gardiner, Dir. Arthur H. Myer, Rep.	Newark, New Jersey Room 601 605 Broad Street	Mitchell 2-1114
6.	H. W. Jones, Director John Convery, Rep.	Philadelphia 7, Pa. Room 1216 21 So. Twelfth St.	Rittenhouse 9420
7.	James Kahlert, Director Joseph A. Babeor, Rep.	Baltimore, Maryland Suite 2605 O'Sullivan Bldg.	Lexington 6260
8.	George G. Arthur, Dir. John B. Roe, Jr., Rep.	Raleigh, North Carolina Room 1112 Raleigh Bldg.	Raleigh 2-3306
9.	A. S. Hotchkiss, Director A. J. Speer, Rep.	Atlanta 3, Georgia Room 603 Grand Theatre Bldg.	Maine 8351
10.	Paul Mooney, Director	Cincinnati 21, Ohio 705 Union Trust Bldg.	Parkway 0100

(over)

District	District Director District Representative	Address	Telephone
11.	Carl S. Coler, Director	Pittsburgh, Pa Flannery Bldg. Forbes St. & Meyran Ave.	Museum 0800
12.	Oscar Grothe, Director Lowell O. Mellen, Rep.	Cleveland, Ohio 513 Union Commerce Bldg. Euclid Ave. & E. 9th St.	Cherry 7900
13	H. M. Jenkins, Rep.	Detroit, Michigan 1164 Penobscott Bldg.	Randolph 2808
14.	A. E. Sinclair, Director William T. Murphy, Rep.	Indianapolis, Ind. 915 Circle Tower Bldg.	Market 8511
15	M. E. Carlson, Rep.	Chicago 6, Ill. Room 1265 Adams-Franklin Bldg. 222 W. Adams St.	Andover 3600
16.	Ernest L. Olrich, Dir. J.H. Rothenberger, Rep.	Minneapolis, Minn. 516 Midland Bank Bldg.	Main 3244
17.	C. T. Cardwell, Rep.	St. Louis, Missouri 603 Shell Bldg.	Central 4206
18.	Tracy T. Word, Rep.	Houston, Texas No. Mezzanine Floor Gulf Bldg.	Capitol 7201
19.	George M. Kirk, Director Arthur E. Lawrence, Rep.	Denver, Colorado 551 Equitable Bldg.	Tabor 3173
20.	Garner A. Beckett, Director Charles H. Fishburn, Rep.	Los Angeles, Cal. 755 Western Pacific Bldg. 1031 So. Broadway	Prospect 4711
21.	Arthur W. Ford, Director Aylwin Probert, Rep.	San Francisco, Cal. 702 Newhall Bldg. 260 California St.	Exbrook 0369
22.	Walter Williams, Director Leighton H. Steele, Rep.	Seattle, Wash. Room 5516 White Bldg.	El. 0200
23.	Walter Williams, Director Laurin E. Hinman, Rep.	Portland, Oregon 902 American Bank Bldg.	Broadway 8471

Files

War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

November 23, 1943

WOMEN'S BUREAU
NOV 24 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

I attach copy of the tentative agenda for the next meeting of the Women's Advisory Committee.

It was so good to see you at the last meeting. We have missed you.

Sincerely,

Margaret A. Hickey

Margaret A. Hickey,
Chairman
Women's Advisory Committee

Telephoned 9:50 am
Miss A not well, considering
MAH



WAR MANPOWER COMMISSION
WOMEN'S ADVISORY COMMITTEE

AGENDA

December 2 and 3, 1943

Social Security Building

Thursday, December 2, 1943 - 10:00 a.m. (Executive Session) - - - Room 5545

Report of Dr. Wm. Haber (in absence of Executive Director)

Thursday, December 2, 1943 - 2:00 p.m. - - - Room 5545

Mr. Clinton Golden and Miss Charlotte Carr

Thursday, December 2, 1943 - 3:00 p.m.

Sub-Committee Meetings

Community Facilities and Services, Mrs. Dunbar, Chairman - - - Room 5545

Public Relations, Miss Bloodworth, Chairman - - - Room 5743

Post-War Planning, Dr. Franklin, Chairman - - - Room _____

Friday, December 3, 1943 - 10:00 a.m.

1. Executive Session

2. Miss Mary Switzer, Assistant to the Administrator, Federal Security Agency (11:00 a.m.)

Friday, December 3, 1943 - 2:00 p.m. - - - Room 5545

1. Mr. J. Walter Diets, Associate Director, "Training Within Industry", WMC
"Demonstration of Job Relations"

2. Reports of Chairman of Women's Advisory Committee and of Chairmen of Sub-Committees

File

November 22, 1943.

Mr. Eugene G. Bewkes, Assistant Direc tor,
Bureau of Manpower Utilization,
War Manpower Commission,
Washington, D. C.

My dear Mr. Bewkes:

When we met in your office several days ago, you spoke of a contemplated trip to the Pacific Coast and expressed the wish that Miss Radin might be able to go too. Miss Margaret Kay Anderson, our representative in California has been doing a fine job and has been working very closely with our Regional Office. She has just recently covered a study of community factors contributing to turn-over among women workers in San Diego war industries. I think it would be fine if Miss Radin and Miss Anderson could meet and I am sure Miss Anderson would want to offer every cooperation from her longer sojourn and experience in that area.

Miss Anderson's present address is El Cortez Hotel, San Diego and her permanent office address if 500 Humboldt Bank Building, 785 Market St., San Francisco.

I expect to leave tomorrow for New York and Schenectady and doubt if I will be back in Washington before some time in January. I hope the Bewkes family will have a happy holiday season and that I will glimpse you all early in 1944.

Sincerely yours,

HBS/nb

Helen B. Sator.

War Manpower

November 18, 1943

To: Miss Charlotte Carr
War Manpower Commission

From: Mary Anderson

In response to your telephoned inquiry regarding Mrs. Hager's report on the Bethlehem Fairfield Shipyard, Baltimore, Maryland, I am enclosing excerpts from the report of an interview and inspection made by her on April 6 and 7, 1943.

MA:IS

War Manpower

November 11, 1943

To: Miss Charlotte Carr, War Manpower Com.

From: Mary Anderson

Miss Stitt told me all about this affair and I thought that you might like to know that we have had the same experience. This was last summer, and I want you to know that we feel the same as you do about it.

MA:IS

(re: Katz + Baltimore plant
Enclosed Miss Hagen's report
of her visit to plant)

November 15, 1943

Mr. J. S. Dorton, State Director
War Manpower Commission
Office for Emergency Management
Raleigh, North Carolina

Dear Mr. Dorton:

Enclosed are the following Women's Bureau publications dealing with the employment of women in war factories:

Spec. Bul. No. 2 - Lifting Heavy Weights in Defense Industries.
3 - Safety Clothing for Women in Industry.
7 - Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs.
10 - Women's Effective War Work Requires Good Posture.
13 - Part-Time Employment of Women in Wartime.
192-4 - Employment of Women in the Machine-Tool Industry, 1942.

Leaflet - Standards for Maternity Care and Employment of Mothers in Industry.

Mimeo. - Women's Wartime Occupations & Hazards.

I am including some typewritten statements on work of women on pneumatic tools, everyday good health, pre-employment physical examination, and trend in women's industrial injuries.

I am sending also two publications put out by the Children's Bureau on the question of a pregnancy policy and maternity leave: (1) "The Working Mother," and (2) "A Maternity Policy for Industry."

There has been little systematic work in this country as yet on the effects of heavy work on women. One recent study (Bradbury and Evans, in Industrial Medicine, October 1943, pp. 690 ff) gives some evidence to show that pelvic disturbances tend to be increased by riveting. However, it appears from their study that this occurs when such disturbances already exist, rather than that riveting originates them. This conclusion would indicate the need for care in selecting the individual women to be placed on such jobs.

The effects of lifting heavy loads vary with many factors, including the frequency of lifting, amount lifted, distance lifted or carried, whether lifting is from the floor or from a table, the physical characteristics of the individual woman, etc. In Occupation and Health, International Labor Office, Geneva, 1930-34, Vol. II, pp. 1252-3, the effect of constant heavy lifting is described as follows:

When women have habitually to carry heavy loads (e.g. in the country or mountainous districts) skeletal deformities are noted (of the vertebral column, lower limbs), alterations in the thoracic capacity and abdominal walls. Thus, for example, a broadening in the lumbar region of the spine in women who carry loads with crushing together of the vertebrae, bringing about diminution in height, deforminity of the pelvic basin with harmful effects on the development of pregnancy. Occupational cramp of the lateral muscles of the neck, pains of the brachial plexus, suboccipital nerves, moveable kidneys, cardias and thyroid hypertrophy, etc., have been reported.

In surveying the work of women in heavy industries, our Women's Bureau representatives have found that the utmost importance must be attached to the selection of the right woman for the right job. If this is done, many of the relatively heavy jobs in shipyards, foundries, steel mills, and railroad yards can be assigned to women without serious consequences. It is desirable that the industrial physician determine in each instance whether a woman is physically able to do such jobs. In addition, other factors must be considered, such as the following:

Hand tools and safety equipment should be suited to the physique of women. Because their hands are smaller, their reach shorter, their strength less than men's, the tools with which men work are not always safe for women.

Height of bench, platforms, or chairs should be adjusted to women's needs.

Rest periods should be allowed. When the job is strenuous, these may need to be frequent, though short. Women are particularly subject to fatigue; they are unable to stand at a job for long periods of time without exhaustion. Since they are particularly subject to varicose veins, allowance should be made for either alternating between standing and sitting while working, or brief rest periods.

The unsuitability of many of the jobs in steel mills, it is found, lies in the environment rather than in the job itself. In both shipyards and steel mills it has been found that chipping is too strenuous a job; the combination of vibration and heavy tool is too much for almost every woman who has ever tried the work. Frequently jobs in these two industries and in foundries involve not the lifting of large pieces (which is done by mechanical hoists) but manipulating them--turning them around for a scarfing or grinding job, for instance. It is this auxiliary part of the work that produces excessive fatigue and brings complaints of back strains from the women.

The Manual of Industrial Hygiene recently published by the Industrial Hygiene Division of the U. S. Public Health Service, makes the following statement which I think is relevant to the determination of the suitability of jobs for women:

The successful placement of women requires a complete physical examination, at least as thorough as for men. . . . Equally important is the preparation of a job analysis sheet which should include, among others, the following items: the degree of physical exertion required; knowledge or skill required; exposure

to moving machinery or other operation hazards; amount of sitting or standing involved in the operation; exposure to toxic dusts, fumes, gases, vapors and mists; degree of eyesight keenness needed; nature of the job, whether individualistic or working with others; and the amount of finger dexterity required. The physical and psychological characteristics of the job and of the woman who is to fill it must be matched if the worker is to be happy and productive.

I am enclosing a list of other Women's Bureau publications relating to the work of women in war industries, and shall be glad to send them to you if you wish.

Yours sincerely,

Mary Anderson, Director

Enclosures
JMiml

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

Raleigh, N. C.
November 10, 1943

Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Sir:

Please send us several copies of your special bulletin Number 2, "Lifting Heavy Weights in Defense Industry".

We would appreciate, also, your sending any other material, which you may have, dealing with the capacity for women doing heavy work or the effects of heavy work on women. We believe that this information will assist our Occupational Analysis Section in its study of the suitability of jobs for women workers.

Cordially yours,

WAR MANPOWER COMMISSION

J. S. Dorton
State Director



War Man

November 3, 1943

Miss C. Jones
Division of Occupational Analysis
and Manning Tables
War Manpower Commission (Room 634)
1778 Pennsylvania Avenue, N. W.
Washington, D. C.

My dear Miss Jones:

In response to your recent telephone request, I am sending you the State regulations governing the employment of women in foundries. As you will see from the inclosed memorandum, five States - Massachusetts, Minnesota, New York, Ohio, and Pennsylvania - have by law, by administrative regulation, or by both, established standards for the employment of women in core rooms.

Our most recent information concerning the administrative regulations of Massachusetts and Ohio is for 1940. Whether or not the States have made any change in these regulations in the meantime, we do not know. Under the War Emergency Powers of the Labor Commissioners of Massachusetts and New York, any labor law or regulation may be temporarily relaxed upon application to the Commissioner and the granting by him of a permit. As far as we know, neither New York nor Massachusetts has permitted relaxation of laws and regulations governing the employment of women in foundries. If we are able to secure any additional information concerning the Ohio and Massachusetts orders, we will communicate with you again.

Sincerely yours,

Mary Anderson, Director

Inclosure
MA:LS:MNG

In reply refer
to WMTF-9

Files
War Manpower

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

APPRENTICE—TRAINING SERVICE

November 3, 1943

Mrs. R. S. Nyswander
Women's Bureau
Department of Labor
Washington, D. C.

Dear Mrs. Nyswander:

In reply to your telephoned request of November 2, we are sending you twelve copies of our pamphlet "Training Women for War Work" and one copy of "Training Womanpower," a publication of the Bureau of Training, War Manpower Commission.

Very truly yours,

Wm. F. Patterson, Director
Apprentice-Training Service

By E. L. Jernigan

Enclosures - 13



War Manpower

October 28, 1943.

War Manpower Commission,
Washington, D. C.

A card from

Mrs. M. C. Hubbard,
1525 N. LaSalle St.,
Chicago, Ill.

Re: Freezing jobs.

not

War Manpower

October 19, 1943.

Miss Helen Ringe
Bureau of Placement, War Manpower Commission
1778 Pennsylvania Avenue
Washington, D. C.

Dear Miss Ringe:

Miss Beeman suggested that the best procedure would be for the Women's University Club to contact Mrs. Wise and ask her to make arrangements with the W.M.C. headquarters in Washington, through Miss Beeman, for the speaker specifying the date (as far ahead as possible), size of meeting, etc. Some of the women mentioned above, such as Margaret Hickey, are booked up considerably ahead.

Mrs. Anna Rosenberg is the only woman regional director and might be available as a speaker outside her regular region (New York). There is no list of directors, chairmen, etc., Miss Beeman said.

I certainly appreciate your fine cooperation on the radio programs, and again my heartfelt thanks.

Very truly yours,

Mary V. Robinson Chief,
Information Division.

MVR
ll

War Manpower Files

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

October 14, 1943

APPRENTICE—TRAINING SERVICE

WOMEN'S BUREAU
OCT 16 1943
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Enclosed is a copy of the bulletin, "Training Women for War Work," the manuscript of which you so kindly reviewed several weeks ago.

RSH - the all the suggestions were accepted

If you so desire, we will be glad to furnish copies for your field representatives or any other group working in this field who might find it of interest

Sincerely yours,

Wm F. Patterson

Wm. F. Patterson, Director
Apprentice-Training Service

Enclosure



War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

October 22, 1943

WOMEN'S BUREAU
OCT 2 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Director, Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

This is to tell you that Mrs. Roosevelt has kindly consented to meet with the members of the Women's Advisory Committee on Thursday, October 28, at 3:30 p.m.

A cordial invitation is extended to you to be with us in conference room 5545, Social Security Building, at that time.

With best wishes, and looking forward to seeing you, I am

Cordially yours,

Margaret A. Hickey

Margaret A. Hickey, Chairman
Women's Advisory Committee



Nurse Manpower

October 9, 1943

Nursing Division
War Manpower Commission
Washington, D. C.

A letter from

Miss Lila Plant,
Guidance Teacher,
Tolleston High School,
Board of Education,
Gary, Indiana

not
/

War Manpower

October 1, 1943.

War Manpower Commission,
Washington, D. C.

A communication from

Mrs. Cecelia Pollack
Teachers Union,
13 Astor Pl,
New York City, N. Y.

Wants estimates on the need for women employment as well as manpower.

War Manpower

Miss Mary Anderson, Director
Women's Bureau
U.S. Department of Labor
Washington, D.C.

My dear Miss Anderson,

The Labor Production Division is finding it necessary more and more to have detailed information about women workers, and the help of the Women's Bureau in supplying us with data on various topics in the past several months is greatly appreciated.

I am sending this note to say that we should like to continue to call on the Bureau whenever we have questions regarding employment problems of women. The information you have supplied to Mr. Saposs on equal pay, proportion of women on different shifts, employment of older women, part-time work for women, laws affecting women workers, suitable occupations, and other subjects, has been very valuable, and your continued cooperation in letting us have unpublished material and in giving suggestions on all these matters will be most helpful in our work.

Sincerely yours,

Joseph D. Keenan
Vice Chairman

War Manpower
Filed

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

October 19, 1943

Miss Mary Anderson, Director
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Anderson:

We are enclosing for your information a copy of a letter received from a worker at the United Aircraft plant at East Longmeadow, Massachusetts, complaining that the Massachusetts hour law does not permit her to work a full 8-hour shift.

We have requested our Regional office at Boston to examine this complaint and, if it finds that an adjustment of the hour law is desirable, to discuss it with Commissioner Moriarty.

Perhaps the Woman's Bureau would also like to investigate it and to make a recommendation on its own or jointly with our Regional office to Commissioner Moriarty.

Frank H. Sparks

Frank H. Sparks, Director
Bureau of Manpower Utilization

Attachment

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

COPY COPY

44 Lake Drive
Indian Orchard, Mass.

August 31, 1943

War Labor Board
Washington, D. C.

Gentlemen:

As representing a group of approximately two hundred (200) skilled women operators employed at United Aircrafts' plant in East Longmeadow, Mass. I have been commissioned by my fellow workers to consult your Board regarding our present labor trouble. We are making this request indepently of our employers Messrs. Pratt and Whitney.

Our complaint is that we are permitted to work only seven hours instead of eight hours daily 3.30 to 11 PM. Labor Commissioner (Massachusetts) Moriarty has refused to grant us permission to work the full shift of eight hours, giving as his reason that he won't have the women of Massachusetts on the streets after 11 PM. We would like to know if your Board could investigate this matter, as we women want to work these extra hours, which means twelve hundred working hours wasted each week instead of being utilized in these times of emergency and stress.

7 a.m - 3 P.M.
3 P.M - 11 P.M.
11 P.M - 7 a.m.

Many of these women have sons and husbands fighting for us and they feel that they should be permitted to co-operate to the full extent of their abilities. Working conditions at this Plant are very excellent other than this difficulty. We shall anxiously await your kind decision on this matter.

Respectfully,

/s/ Jemmie Tilman

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

October 22, 1943

Routed around on 10/25/43
Rec'd 10/25/43

Filed in "Women" industrial folder

Miss Janet Hooks
Womens' Bureau
Room 1216
United States Department of Labor
Washington, D. C.

Dear Miss Hooks:

We are enclosing one copy each of our two pamphlets INCREASED UTILIZATION OF WOMANPOWER: Recently Reported Placements in Occupations Often Considered Unsuitable for Women dated June 1943, and the Employment of Women in the Slaughtering and Meat Packing Industry dated September 1943.

Sincerely yours,

For the Deputy Chairman
and Executive Director

C. L. Shartle, Chief
Division of Occupational Analysis
and Manning Tables

Enclosures 2



September 17, 1943

Labor Utilization Division
War Manpower Division
Federal Security Agency
Washington, D. C.

Gentlemen:

One of our field representatives has written to us asking that we procure for her a copy of the Occupational Dictionary together with the Supplements. Would it be possible for you to forward a copy to us in order to supply her need?

Sincerely,

Bertha M. Nienburg,
Assistant Director

LW:

W. M. C. Field Instruction No. 2, September 10, 1943

"Wages paid to workers engaged in the activity are not less than the rate established for the region or area by the War Labor Board as necessary to avoid substandards of living. If no such rate has been set and approved, the activity must be paying wage rates atleast equal to 40¢ an hour."

"When an Area Manpower Director finds that a trade or service, primarily local in character, is required to maintain services necessary to the health, welfare and safety of the area or services necessary for the conduct of essential activity, and that it cannot meet the necessary demand for its services without the special protection provided for it in Section II-B of this instruction, he may designate it as a 'locally needed' activity."

File
War Manpower

WAR MANPOWER COMMISSION

WASHINGTON, D. C.
October 14, 1943

APPRENTICE—TRAINING SERVICE

Miss Jennie Mohr, Field Representative
Women's Bureau, U. S. Dept. of Labor
305 Post Office Building
Seattle, Washington

Dear Miss Mohr:

Enclosed is a copy of the bulletin, "Training Women for War Work." This is the final edition of the manuscript which you so kindly reviewed. Our Seattle office will be able to supply any additional copies for which you may have use.

I hope that you are finding your work in Seattle increasingly interesting and that you will get in touch with me any time you are in Washington, D. C.

Sincerely yours,

Mary Curran

Mary Curran
Training Specialist

Enclosure



War Manpower

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON, 25

September 24, 1943

MEMORANDUM

To: ~~Miss Pidgeon~~ Miss Anderson

From: Jennie Mohr

Subject: Meeting with Occupational Information Section, War Manpower Commission

On September 22, 1943, I attended with Miss Nienburg a staff meeting of the Occupational Section of the W.M.C. The meeting was attended by those members of the staff who were engaged in the construction of the Industrial Manning Tables. Its purpose was to discuss various questions related to the utilization of women in war industries and the analysis and classification of their jobs.

My part in this meeting consisted in a discussion of the work done by Margaret Kay Anderson and me in San Francisco on the Shipbuilding Manning Table and its application to the Mare Island Navy Yard. I pointed out that there were two general problems involved in using the Table to set up a program of women's work. The first is the problem of job classification. Classifications used in the Manning Tables are necessarily very broad, each one covering a wide range of jobs. The work of the women frequently involves only a small section of this range, because of the considerable breakdown of jobs which was made when women were introduced into the yards. Consequently the Manning Table classifications cannot be used as more than a very general guide to what women are doing, and must be carefully interpreted. If a yard is to use the Table in setting up a program for women, there must be a considerable breaking down of the job classifications. Because women are being taken on largely by trial-and-error, it is not always possible to determine the extent to which they actually are doing a given job. Usually it is found that they are somewhere intermediate between the skilled and the unskilled classifications which may be all that are listed in the Dictionary of Occupational Titles. It was pointed out to me that the Dictionary is in the process of incorporating such intermediate classifications.

The second problem is that of determining the Suitability and the Training Time of jobs for women. Theoretically those two factors are wholly independent. But I found that there is in fact some correlation between suitability and training time. This unintentional correlation, I believe, arises from the fact that the basic material from which the Tables are constructed is the opinions and estimates of employers. When the Shipbuilding Table was made, women were very little used in the yards; and employers and supervisors were reluctant to say that jobs requiring skill or responsibility were suitable for women.

Although the Manning Table sets up the physical requirements of a job as the major criterion for suitability, other factors should be considered. Among them are the conditions under which a job is done; the possibility of cumulative fatigue; the physiological effects on women; the emotional and psychological adjustments necessary; and the fact that often suitability depends on selecting the right individual for the job.

In general, it was found that the training times estimated in the Manning Tables were too high; women are learning many jobs in much less time than it was expected they would need.

War Manpower

October 12, 1943

Miss Charlotte Carr
Assistant to the Vice Chairman
War Manpower Commission
Room 5233 Social Security Bldg.
Washington, D. C.

Dear Miss Carr:

There is much interesting and valuable information contained in this proposed pamphlet. However, the Women's Bureau would not want to issue it because the form is too complicated, the contents too lengthy, and the cost too high.

The material is not sufficiently popular or concise for the purpose of recruiting individual women, though it might be valuable to clubwomen or women's organizations involved in helping to recruit women, to libraries, and to some other agencies.

A series of popular leaflets could be prepared from the material, and used for recruitment purposes.

Cordially yours,

Mary Anderson, Director

MA:IS

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

WASHINGTON - 25

October 8, 1943.

Memorandum:
To: Miss Anderson
From: Mary V. Robinson

There is much interesting and valuable information contained in this proposed pamphlet. However, the Women's Bureau would not want to issue it because the form is too complicated, the contents too lengthy, and the cost too high.

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A series of popular leaflets could be prepared from the material, and used for recruitment purposes.

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

October 2, 1943

WOMEN'S BUREAU
OCT 4 - 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Chief, Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

The enclosed material may be familiar to you and I suspect is. It was referred to Manpower with the suggestion that it be printed from this end.

I am sending you the comment of our Information Service and my own comment regarding it, also the reply back from the authors. I haven't yet answered this letter, which was referred to me by General Rose, and will wait to do so until I find out what, if anything, the Women's Bureau would like to do with this material.

Cordially

Charlotte Carr
Assistant to the Vice Chairman

Enclosures (4)

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

COPY

WAR MANPOWER COMMISSION

DISTRICT OF NEW JERSEY HEADQUARTERS
Training Within Industry Service
605 Broad Street Newark 2, N. J.

September 20, 1943

WILLIAM C. ROSE
Brigadier General
Chief, Executive Services
War Manpower Commission
Washington, D. C.

SIR:

It will be perfectly agreeable to Mr. Cox and to me if you will arrange with Miss Charlotte Carr to take up the material in regard to Women in Industry with Miss Mary Anderson, as suggested in your letter of September 4.

It was my privilege to be on a panel with Miss Anderson last fall at the meeting of the American Management Association in New York at which this topic was discussed. Moreover, Miss Anderson is, I believe, well acquainted with Doctor Lillian M. Gilbreth, who has been very helpful in the preparation of the manuscript submitted by Mr. Cox and me.

We both wish to express our thanks for your interest in the matter.

Respectfully,
(signed) Esther R. Becker

Clifton H. Cox
Esther R. Becker

Reference to Manuscript
"Help Wanted Female."

COPY

September 3, 1943

TO: General William C. Rose

FROM: Charlotte Carr

RE: Material from Clifton Cox

This material is good, enlightening and much of it material that is probably not available through any other source.

The dialogue method seems the wrong method for an article this long and if it is to be published as a pamphlet, I feel it would have to be very much cut. But actually, I doubt it would have much of a public appeal, and I would have preferred it frankly as textbook material without the attempt at popularizing it. At least, I think the popularizing method hasn't really gotten over in it.

The attached memorandum from Verda Barnes indicates the reaction of the Information Service to Manpower's publishing it.

What would you think of the suggestion of having it referred to Mary Anderson, of the Women's Bureau, to see if that might be a source through which it might be issued? I should be glad to refer it to Miss Anderson myself if you want me to.

COPY

August 31, 1943

TO: Charlotte Carr

FROM: Verda Barnes
Information Service

SUBJECT: Attached Proposed Pamphlet Prepared by Clifton Cox and Esther Becker, TWI, New Jersey.

I have read this material and discussed it briefly with Mr. Broughton and Mr. Wile. Mr. Cox and Miss Becker have done a very thorough job of collecting material on the recruitment, training and placement of women.

Mr. Wile thinks the material is too lengthy to maintain the interest of the average reader. He points out that that is one reason our few booklets on the subject are short and general in nature.

The cost of publishing a booklet of this length would be high -- even if we were able to have it done by the General Printing office, which would involve a great deal of time.

Since neither WMC nor OWI have funds to pay for duplicating this material elsewhere, it seems out of our reach at this time.

We discussed the possibilities of trying to interest the public affairs people in publishing this as one of their pamphlet. However, Mr. Broughton says their pamphlets are never more than 1/6 this long so that seems to preclude that possibility.

Attachments

COPY

August 19, 1943

Mr. Lawrence A. Appley
Executive Director
War Manpower Commission
Washington, D. C.

Dear Larry:

Under separate cover I am sending to your personal attention the rough manuscript for a booklet that I believe should be sponsored and published by the War Manpower Commission. It will help you on the drive that is being planned for this Fall to enlist more women-workers in war industries.

The shortage of "woman-power" is certainly a seriously critical subject and one which suffers very much from a lack of good factual publicity. The present books and publications available all seem to be very general and rather vague. This material that we are submitting is specific and direct in discussing the problems, working conditions and types of work that women can expect to find in war plants. All the people who have reviewed the material state that the publication and free circulation of this material in a WMC booklet should attract thousands of new women workers. In fact, several women who have read the text have already applied for war jobs.

Miss Esther R. Becker, Administrative Assistant in TWI Headquarters office at Newark and I put the mahuscript together from the information that we have gathered personally during the past nine or ten months. We would recommend that the running text be vari-typed and the actual advertisements be pasted up to complete the composition of each page. Then each page could be photo-offset and bound into booklet form. The sample of this set-up is shown on Page 47. A typical example of the Question and Answer technique that is used in presenting the material is also shown on pages 47 and 48.

We realize that this will still require quite a bit of editing and that some of the material would have to be brought right up to the minute before it is finally published. We also have a great deal of additional material that we would be glad to turn over to any person delegated by you to handle the work. Glenn Gardiner, who has reviewed the material, is enthusiastic on the subject and the manner of presentation. He has offered to do a forward piece.

We feel that this editing and printing job should be done by W.M.C. rather than a commercial publisher because it is so closely tied in with the war production activities of the commission. It could thus be made available at cost or free rather than at $1.00 a copy which would probably be the absolute minimum for a commercial publisher.

I would personally appreciate it if you would turn this material over to the proper person in your publicity division for their consideration. They can get in touch with me through the Training Within Industry office either in Washington or Newark.

Sincerely

Clifton Cox (signed)

Washington Headquarters
Representative

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

October 8, 1943

Files
War Manpower

Miss Mary Robinson
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Robinson:

Thank you for referring the calls for material from Judge Kenyon, Dr. Glass, and Miss Hellman. The information has gone out to them today by air mail. I am sending you a copy of our publication, "Women in the War Time Labor Market," and a copy of our background press release on womanpower.

I hope you will call me at any time, if I can be of service to you.

Sincerely,

Verda Barnes

Verda Barnes
Assistant to the Director
of Information

Enclosures 2



Gen. F. Co.
War M. P.
Can

October 2, 1943

Mr. C. L. Shartle, Chief
Division of Occupational Analysis and Manning Tables
War Manpower Commission
778 Pennsylvania Ave., N. W.
Washington, D. C.

My dear Mr. Shartle:

In accordance with a telephone conversation I had with your office, I am returning revised pages of your Occupational Directory as these pages are uncut and cannot be securely filed in place in your looseleaf notebook. I will be glad to receive the two sets you said you were sending to me.

Sincerely,

Bertha M. Nienburg,
Assistant Director

LW

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

To—		From—	Re Attached Please—
✓	Anderson.		Approve
	Nienburg.	✓	Comment
	Larrabee.		Note
	Benham.		Note and return
	Best.		Reply
	Erickson.		Draft of reply
	Files.		Signature
	Hyde.		Would like to discuss
	Manning.		File
	Mettert.		
	Pidgeon.		Date
	Robinson.		Note: Very interesting.
	Smith, F.		
	Spring.		
	Steel.		
	Stitt.		

APO 14—3769

Hope it is effective

Nirenburg

DEPARTMENT OF LABOR

August 17, 1942

From: The Secretary

To: Miss Anderson

It occurred to me that you might like to see the attached copy of my letter to Mr. Altmeyer.



No. 204

GPO

War Manpower

August 17, 1942

Mr. Arthur J. Altmeyer
Executive Director
War Manpower Commission
Washington, D. C.

Dear Arthur:

I have just learned through Mary Anderson of the proposed Women's Committee of the War Manpower Commission.

In view of the history and status of the Women's Bureau and the position which Miss Anderson holds as its Director, I hope you will consider her for appointment as Chairman of this Committee. I notice that a Federal official presides as Chairman of the Management-Labor Policy Committee.

Sincerely yours,

(Signed) Frances Perkins

L:EJB
cc - Miss Anderson

U.S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

September 8, 1943

Respectfully referred to

Miss Louise Baker,
Nursing Division,
Procurement and Assignment
Bureau of Placement
War Manpower Commission,
Washington, D. C.

A letter from -

Mrs. W. F. Scholar
260 A. E. 39th St.,
Norfolk, Virginia

Re: Practical nursing.

The writer has been informed of this reference.

Mary Anderson

(1990) Director.

War Manpower

September 17, 1943

Miss Charlotte Carr
Assistant to the Vice Chairman
War Manpower Commission
Washington, D. C.

Dear Miss Carr:

I am sending you two letters in which I think you will be interested. We find here and there the Employment Service is not being cooperative in employment of women, particularly the older women. Now that it is so necessary to employ all that will work, it seems to me they ought to be instructed by the Manpower Commission to change their policy.

With best wishes to you,

Sincerely yours,

Mary Anderson, Director

MA:IS

Enclosures - 2
1. Copy of letter attached
2. Copy of letter from Janet Campbell Higgins, Woodstock, V. T.

Mrs. George Seaman
Box 466
Beacon, N. Y.

September 13, 1943.

Miss Mary Anderson
Director, Women's Bureau
Department of Labor,
Washington, D. C.

Dear Miss Anderson:

On August 19th you sent me (to my New York address) a reply to my letter of August 16th.

It was the only intelligent answer I have had to the numerous letters I have written in my effort to have ability to do the work made the test for hiring rather than age.

I have written the Manpower Commission several times. I think it is now time that a direct challenge was made to them from some person with power or large influence. Every time they send out a call over radio or in the press for more workers, all of us who are over hiring age and who are strong and eager to work feel like telling them that they are not speaking the truth. It is not workers they want; they are merely keeping a register of vital statistics.

Some one ought to put a large firecracker under the mentality of the Manpower Commission.

Very truly yours,

S/ Mrs. I. H. Seaman

War Manpower

September 17, 1943

Labor Utilization Division
War Manpower Division
Federal Security Agency
Washington, D. C.

Gentlemen:

One of our field representatives has written to us asking that we procure for her a copy of the Occupational Dictionary together with the Supplements. Would it be possible for you to forward a copy to us in order to supply her need?

Sincerely,

Bertha M. Nienburg,
Assistant Director

IW

War Manpower Comm

August 26, 1943

War Manpower Commission
Washington, D. C.

My dear Sir:

In regard to your mailing list 69, I am writing to say that for our work in the division of information of the U. S. Women's Bureau it is essential that my name continue on the Manpower Review mailing list.

I am enclosing a card addressed to me, and the address as it stands is correct.

Very sincerely,

Mary Anderson, Director.

Enclosure

MA:RN:ahm

War Manpower

August 25, 1943

War Manpower Commission
Washington, D. C.

Gentlemen:

I shall greatly appreciate it if you will continue to send a copy of the MANPOWER REVIEW for official use in the Women's Bureau.

Sincerely yours,

Mary Anderson, Director

IS

(COPY)
WAR MANPOWER COMMISSION
U. S. Employment Service

War Manpower

1696 Mission Street
San Francisco 3, Calif.
September 16, 1943

Miss Mary Anderson
Director Women's Bureau
United States Department of Labor
Washington, D. C.

Dear Miss Anderson:

I would like to express appreciation for the leaflets you sent us, What Job is Mine on the Victory Line? These leaflets have proven very useful and effective. We are quite impressed, also, with this latest one you have just issued which we have just received, Women Wanted for the Essential Civilian Industries, that should prove extremely valuable in recruiting, and uncannily fits our San Francisco situation, as it must all labor shortage areas. If you could supply us with 5,000 we could use them to excellent advantage. Probably when the active program for recruitment of women begins in this area, the Recruitment Division of the War Manpower Commission will be making an additional request.

I am wondering, also, if you might be able to aid us in obtaining the Monthly Labor Review for our library. In this Information and Counseling Center we attempt to centralize all information on employment trends, labor market conditions, and so forth, and serve as the library not only for the United States Employment Service itself, but also for many agencies and individuals in the community who call upon us constantly for such information. You know, I am sure, the situation in the United States Employment Service, there being no funds allocated for this purpose. If it would be possible to secure the Monthly Labor Review we should appreciate it very much indeed.

Sent 5 copies you could use more of them
9/24/43

Yours very truly
Floyd Byrnes, Manager
San Francisco Office
By Barbara A. Mayer, Supervisor
Information and Counseling Center

(COPY)
WAR MANPOWER COMMISSION
U. S. Employment Service

1696 Mission Street
San Francisco 3, Calif.
September 16, 1943

Miss Mary Anderson
Director Women's Bureau
United States Department of Labor
Washington, D. C.

Dear Miss Anderson:

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Yours very truly
Floyd Byrnes, Manager
San Francisco Office
By Barbara A. Mayer, Supervisor
Information and Counseling Center

War Manpow

July 20, 1943

Lawrence Appley, Executive Director
War Manpower Commission
Washington, D.C.

My dear Mr. Appley:

We would like to have for the use of the Women's Bureau staff two copies of "The Utilization of Women in War Production in Great Britain, Germany and Russia."

Sincerely,

MA:ml

Mary Anderson, Director

Women in Industrial Workers

Return to Pidgeon

Domestic Commerce

WOMEN'S BUREAU
SEP 4 1943
DEPARTMENT OF LABOR

VOL. 31 NO. 22 SEPTEMBER 1943

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Domestic Commerce

Issued by
The Department of Commerce

JESSE H. JONES, *Secretary*

A monthly bulletin of the national war economy prepared under the statutory functions of the Department of Commerce "to foster, promote, and develop the foreign and domestic commerce . . . of the United States."

☆

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PUBLISHED WITH THE APPROVAL OF THE DIRECTOR OF THE BUDGET (42 J. C. P.)

looking ahead. . . . .

The Bureau of Foreign and Domestic Commerce, long the Businessman's Bureau in Government, is gearing itself to play a more important role than ever before when hostilities cease.

This is further evidenced in the recent announcement of the new directorate and its plans for the present and future.

The new director, Amos E. Taylor, and two assistant directors, O. P. Hopkins and Raymond C. Miller, recently appointed by President Roosevelt, are in every sense career men. They have given long years of service in this Bureau of the Department of Commerce. They are equally versed in the workings of Government and of business. But above all, they are deeply conscious of the Bureau's basic functions—to foster, promote, and develop the foreign and domestic commerce of the United States.

Looking ahead, Director Taylor sees the Bureau as a ready source of information that will help guide businessmen in their coming peacetime operations. Toward this end, his immediate agenda calls for a concentration on the post-war economy, its problems and its needs.

"For the present," he explains, "the major services of the Bureau must be centered on the war effort. We will continue to supply the war agencies with both foreign and domestic economic information and to assist businessmen wherever possible in their wartime problems.

"But at the same time we will step up our studies on the future. For I believe this Bureau's greatest opportunity lies in the coming peacetime world."

What Is Future of Industrial Empire?

By Jesse Jones

SECRETARY OF COMMERCE

OUR GOVERNMENT has spent probably 25 billion dollars during the past 3 years in building plants and facilities vitally needed for prosecuting the war.

Much of this money has gone into purely military construction—things for which we can have only slight use after the war. But a great deal of it has gone into plants, shipbuilding, and industrial facilities which with some rearranging can continue to be operated in the peacetime period. Indeed, such facilities will have to be employed if we are to keep people at work and avoid a depression that might easily threaten our whole economy. If wisely handled they will further improve our standard of living and serve as an aid to other countries.

A large share of our wartime expansion has been financed by the RFC. Through its subsidiary, the Defense Plant Corporation, it has authorized the expenditure of approximately $9,000,000,000 for the construction of plants and manufacturing equipment. In addition, it is spending large sums for the development and production of raw materials.

Expenditures for Plants

For instance, the Defense Plant Corporation has spent about $1,000,000,000 in expanding the Nation's steel production. Included are large plants at Geneva, Utah; Homestead, Pa.; and Chicago, Ill. Also, the Corporation has built 120 smaller steel plants and additions to privately owned properties. Title to all of these is in the United States Government.

Nine plants have been built for the production of aluminum having an annual capacity of 1,200,000,000 pounds—more than that of all privately owned plants. In addition, 45 plants were constructed for fabricating aluminum. All this, owned by the Government, has cost $760,000,000.

In the magnesium field, DPC has invested approximately $430,000,000 in manufacturing plants. Private industry will own only about 8 percent of the total magnesium production of the country at the close of the war.

In rubber, the Government will have an investment of $625,000,000 in plant facilities. Such facilities are sufficient to manufacture more than 800,000 tons of synthetic rubber annually, which is one-third more rubber than we have ever used in peacetime.

The Government also has a substantial stake in the machine-tool industry. In fact, the RFC has so expanded this particular industry that it will own almost one-half of the country's machine-tool manufacturing facilities.

However, the biggest investment in manufacturing facilities has been made in the aviation field. For RFC has built and owns 521 plants for the production of aircraft, aircraft engines, parts and accessories at a total cost of $2,700,000,000. This is 10 times the value of privately owned investments.

Extreme necessity has compelled RFC to finance and build facilities for the manufacture of high-octane aviation gasoline. It has constructed and operates pipe lines to bring petroleum and its products from the Gulf coast country to the eastern seaboard. What this vast program amounts to in dollars is revealed by the following:

The sum of $500,000,000 has been expended in building 50 plants to manufacture high-octane aviation gasoline. Twenty of these plants are owned by RFC.

It will cost $180,000,000 to complete the program of 3,800 miles of pipe lines. The most important of these is the big 24-inch line running from Longview, Tex., to Philadelphia and New York, a distance of 1,500 miles. This one line, recently completed at a cost of $95,000,000, will have a capacity of 300,000 barrels of crude oil a day. It is owned by the RFC and operated for its account by men in the oil industry.

From this brief review of Government's wartime industrial operations and investments future problems are clearly discernible.

Responsibility to Business

The responsibility of the RFC, because of the fifteen-hundred-odd plants of various kinds which it has built and financed, will be great. Many of these are leased to industrial operators for the period of the war. Many of them are operated by industry for account of RFC. In the former, the governmental agency gets a satisfactory rental or other compensation for the use of the plant. In the latter, the operator gets a fixed fee for his services in operating the plant.

As long as the war lasts, there is no question as to their need. They will be manufacturing the things we must have to fight the war, either as basic materials or finished products.

But when peace comes, these plants, with the millions of service men and women and war workers, will constitute the principal problem in our post-war economy.

Obviously, we cannot afford simply to write off all this war expansion as a total loss, and it will not be necessary. We must save every bit of it that can be saved and use it in rebuilding our economy. There will be need for some of it in the rehabilitation of countries that have been overrun by the enemy, and some to replace less modern facilities both in our own country and in other countries.

How much of it can be used to advantage in this country and how much can be used for rehabilitation of other countries and on what basis are matters about which we should be thinking now.

Where any industry is able to absorb these war-born facilities on a basis fair to Government, that policy should be adopted. In such cases, private business should be allowed to buy or lease on equitable and reasonable terms.

In those industries where Government facilities approximate or far exceed those in private hands, the solutions will be more difficult. For example, we very easily could destroy private investments in the aviation, magnesium, and aluminum industries and seriously affect those in steel, but certainly we should not, and will not.

And then there is synthetic rubber. Government will own all of this industry. While it is not reasonable to suppose that we will rely entirely on this wartime substitute after hostilities cease, we will need to maintain and operate the most efficient of these synthetic plants. For, we should never again be entirely dependent upon foreign sources of rubber.

Congress Has Biggest Job

The Congress, which will have the greatest responsibility for establishing a general policy toward solving such problems, has created a committee on post-war economic policy and planning under the chairmanship of Senator Walter George of Georgia. Various elements of the executive branch of Government, such as the White House, the RFC, the Bureau of Foreign and Domestic Commerce, and the War Production Board, are analyzing the situation carefully.

Business and industry, under the sponsorship of the Department of Commerce, and the Committee for Economic Development, are dedicated to the maintenance of full employment after the war, through utilizing our expanded industrial machine. And other organizations are studying post-war problems.

However, the fate of industries expanded through the exigencies of war will depend largely upon the wisdom and fairness displayed by Government. In this respect, I have no fear but that Government will deal fairly with industry. Thus, it will be reflecting the will of the people which, in my opinion, is to maintain the principle of private initiative and private enterprise—the foundation upon which our country and its freedom have been built.

There will, of course, be differing opinions. No doubt some will advocate that Government stay in business and operate the facilities with Federal funds. Others may urge that we scrap a large part of this war expansion in order to remove undue competition. Still others will be looking for bargains, hoping to

(Continued on page 9)

WMC-USES Sponsors Womanpower Drive

FOR EVERY woman working in war plants there must be five filling unglamorous but vitally essential civilian jobs, according to the War Manpower Commission. And this need must be filled by the end of December 1943, declare officials of this agency, if we are to avoid a serious breakdown on our home front.

It means that women must quit their homes, or less important work, to fill employee gaps in retail stores, laundries, restaurants, transportation, farms, food-processing plants, schools, hospitals, public institutions, and all other necessary community services. It means also that all employers must open their doors to women.

Actually, there must be 16.8 million at work before next year—a net increase of 1.9 million over December 1942. This number will have to be distributed so that 2.9 million will be employed in the munitions plants, 1.0 million in agriculture, 1.9 million in other essential activities, and 11.0 million in all other work.

Millions Are Needed

However, the increase of 1.9 million does not take into account the number of women who will have left the labor force during the year because of home responsibilities, accidents, age, death, and so on. Therefore, the number of women needed to augment the present force and to take care of replacements will very probably reach the 4- or 5-million figure.

To focus Nation-wide attention on these vast requirements, WMC will wage local enrollment campaigns during the coming month for the volunteer mobilization of American womanpower. Emphasis will be placed on those jobs which, although not as enticing as building airplanes, are just as important in maintaining the moral fabric of our war effort.

Obviously, the need is not equal throughout the country, but the Government does not encourage women to migrate to other communities. Rather, it seeks to enlist them in local jobs. "But it does a woman no good to hear that 2 million women workers are needed this year or that women can make a wartime contribution by taking jobs in consumer trades and service industries," declares Miss Charlotte Carr, assistant to the deputy chairman of WMC. "A woman needs to know where, in her town, there is a job for which she is needed and for which her background and experience fit her. This is a matter of intelligent guidance on a local basis. The Government agency which can do this job is the U. S. Employment Service through its national network of local employment offices."

By Edith S. Preiner

PUBLICATIONS UNIT, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

In its recruiting campaign the USES is using the press, radio, posters, billboards, and civic groups. All advertising is based on the local needs of individual communities.

Planning, lay-out, art work, and copy for newspaper ads, posters, and billboards were contributed by the War Advertising Council. This semiofficial agency was organized soon after Pearl Harbor to channel war information to the public through newspaper, radio, and other advertising. It serves as a coordinating body for contributing agencies and since its inception has devoted an estimated $250,000,000 worth of space and time to the war effort.

The slogan of the entire campaign is THE MORE WOMEN AT WORK—THE SOONER WE'LL WIN. Some of the newspaper ads are slanted entirely to strictly unglamorous civilian posts, others combine these with war jobs.

Both WMC and USES are fully aware that hiring untrained women presents many problems. They realize that many, motivated by patriotism, will willingly flock to war plants and shun the desperately short-handed supporting industries and businesses. But by carefully watching the slowly rising tide of women-at-work—in March total employment had reached 15.2 million and by May the figure rose to 15.9 million—these war agencies have some pertinent advice to offer businessmen.

For instance, there is the matter of age. The Government has continually discouraged the employment of mothers with children under 2 years old. However, employers, on the whole, seem to prefer younger women who learn more quickly and are more adaptable to working conditions. Older women, particularly those over 50, are often discriminated against. But the fact remains that more mature women are less likely to have family responsibilities which make for absenteeism, and it has been proved that practically any special problem can be overcome by skilled personnel guidance.

Some farseeing, larger establishments have employed professionally trained women to counsel workers on personal and domestic matters. Actual experience has proved that the ideal personnel office staff also provides assistance in obtaining medical and dental care, and makes arrangements for the day care of children when necessary. Too, working schedules are arranged to permit women to make regular visits to the beauty shop.

It is also generally conceded that many



Agriculture photo from OWI

Food processing—drying and canning—is one of the important jobs well adapted to womanpower. Here we see an operator running a machine which cores and slices apples in preparation for drying them for that favorite dessert—applie pie.

of the serious difficulties in connection with untrained workers can be avoided if proper personnel services are provided before women are employed.

In industry employers must make adjustments on machines and in the organization of work in order to fit men's jobs to women's capabilities. Also, rest periods and rest rooms are essential. Special measures must be taken to prevent accidents, and protective work clothes furnished. And transportation lines have found that mechanical devices should be adopted to lessen the need for lifting heavy weights. Seats for women bus and streetcar drivers should be adjustable.

As an aid to business, the Department of Labor has issued a series of pamphlets setting forth recommended standards for women at work. These deal with heavy weight lifting, safety clothing, good posture, and so on, and may be obtained by writing to the Women's Bureau, Department of Labor, Washington 25, D. C.

It is important, say officials of this Bureau, that women be paid fair wages, based on occupation, not on sex. A lower rate of pay constitutes a threat not only to the morale of these wartime workers but also to the job security of men workers, many of whom fear displacement by women and a general decline in wage standards. However, the Women's Bureau reports that discrimination against women still exists in some areas, despite the endorsement of the equal-pay policy by the National War Labor Board in several of its decisions.

As to adjusting hours to their availability, housewives are working on a part-time basis in many localities. It is felt that this custom could be enlarged considerably. For example, a mid-day schedule, rather than the more prevalent basis of 2 or 3 days a week, would be feasible for women in department stores, laundries, or other establishments. In this way, a women needed at home at certain hours could still be employed in establishments where help is scarce. As yet, little has been done by business as a whole in employing women on a part-time basis.

Up to late spring there was a widespread prejudice on the part of many managements against hiring women in typically men's jobs. Fortunately, this attitude is rapidly changing and the two most interested Government agencies—WMC and USES—anticipate little difficulty on this score.



Women take jobs behind the meat counter. This one is learning to cut meat so that she may take her place on the home front and fill the spot vacated by a man who has left for more active participation in war.



That women are successfully holding down many jobs considered as coming within man's domain is indicated by the following few cases:

The transportation industry, one of our most vital civilian services, has been one of the hardest hit by the manpower shortage, and that industry is welcoming women recruits. It is estimated that, by October 1943, 175,000 more workers will be needed. Both replacements and new workers must come, to a large extent, from the ranks of women.

Because the air-transport industry is relatively young, there was no prejudice against employing women. They get the same training, opportunities for advancement, and seniority rights as do men. But there are still many gaps that must be filled.

As of January 1943, women represented only 4.8 percent of total employment in the railroad field. It is expected that during 1943 railroads will finally pass the last war's peak of 100,000 women on their pay rolls.

At present women are being hired in this field mainly as office workers, and as laborers in stores departments and shops. The number of telegraphers and telephone operators has more than doubled. In the mechanical field they are able to handle a number of jobs after short training periods. For example, they are successfully serving as tractor drivers, roundhouse clerks, crossing watchmen, locomotive wipers, engine cleaners, crew callers, and brakemen.

Women are working as conductors on cars and busses, as motormen, bus drivers, office clerks, and ticket agents. In the shops, car barns, and garages they are servicing cars and busses, making

(Continued on page 22)

Women Cooperating in War Activities

Because of the importance of women at work in war production, the regional business consultants of the Bureau of Foreign and Domestic Commerce were asked to report on this subject. These consultants are located in Boston, New York City, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco.

By Wilford White

ACTING CHIEF, DIVISION OF REGIONAL ECONOMY, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

ONE of the outstanding features of the war on the domestic front has been the production of war materials—production at a high, sustained rate. And one of the reasons for this gratifying situation is the rapidly increasing number of women who have given up their daily routine to flock to the war industries. From homes, schools, offices, and retail stores, women have gone to the war plants to pit their willingness to work against machines which turn out the war mechanisms needed by their husbands and sons and friends in every corner of the world.

Conclusions arrived at from a study of the field reports follow:

1. Womanpower has made the solution of our war manpower problem much simpler than it otherwise would have been.
2. More women have entered more different types of positions in more different industries than they did during the first World War.
3. With very few exceptions, women are now employed in every industry and trade in the country.
4. With fewer exceptions, trained women are proving the equal of the men whose positions they took over.
5. The proportion of women to total employees is increasing most rapidly in the newer war industries such as aircraft, shipbuilding, and munitions. It is also increasing very rapidly with all transportation agencies.
6. There is little evidence that women are being employed in professional and executive positions in increasing numbers.
7. It would appear that as many as 50 percent of the women war workers would like to remain employed after the war.
8. It is evident that such mass employment of women will be dependent upon the maintenance of a high level of the national income.

The first World War sucked thousands of women into jobs previously held exclusively by men. The present world conflict is pulling millions of them into occupations still considered exclusively the prerogative of the male. On June 1, 1941, there were 10,400,000 women gainfully employed in the United States in nonagricultural employment. By June 1, 1943, this number had increased to 14,400,000, or a gain of 38.5 percent. And this increase is still going on. While the number of women employed between June 1, 1941, and June 1, 1943, in nonagricultural employment increased by 4,000,000, the number of men decreased by 1,800,000.

But what are these women doing? Of course, they are working in service establishments, such as laundries, or in retail shops, as cashiers and delivery girls, and meat cutters, or in offices, as supervisors, as well as mail girls, typists, and bookkeepers.

You ask, what are they doing that is new? It might be easier to report on what they are not doing. Large numbers are found in the newer war industries, such as aircraft manufacturing, shipbuilding, and munitions. And they are found in every nook and corner of transportation.

Let's take transportation. Railroads are employing women for about everything except engineers and firemen. Trains are called by women. Women now collect tickets on trains, planes, busses, and streetcars. They operate busses, streetcars, and trucks. They run retail delivery trucks and milk wagons, and deliver ice. They work in roundhouses, repair busses and trucks, and service passenger cars. They work on the right-of-way of many railroads.

(Continued on page 22)



Courtesy of Consolidated Vultee Aircraft Corp. and Modern Industry

Beauty and the beast in modern times. A 105-pound girl operates an enormous hydropress. By the touch of a finger she releases its tremendous pressure, developed up to 4,500 pounds, and helps to speed production of parts for planes.

War Manp

August 11, 1943.

To: Miss Charlotte Carr,
Assistant to Mr. Clinton S. Golden,
Vice-Chairman, Industrial Relations Division,
War Manpower Commission

From: Mary Anderson.

Re: Reports from Women's Bureau agents emphasizing some of the topics discussed in our conversation this noon.

1. Our agent, Mrs. Wright, whom you met in Buffalo states in one of her letters that she is interested to see how much authority seems to be given to Miss Beth Moore. She is making recommendations to firms based on their completed manning tables with rather surprising competence.

Mrs. Wright also refers to the discrimination in the failure of the Chevrolet Company to upgrade colored men. A representative of the UAW-CIO brought the grievance before Mr. Peterson of the War Manpower Commission and management agreed at this conference to upgrade the Negroes as rapidly as other men were furnished to replace the Negroes.

2. From our agent Mrs. Sater in the Buffalo area, who has been surveying the problem of migrant workers in food processing plants, we have a report that she has found the policy in one or two localities, which may or may not be widespread, of giving women cannery workers enough employment to entitle them to unemployment compensation and discouraging them from taking other jobs in defense work elsewhere so that they will be available to the canneries when needed in peak seasons. She also has found a system of hiring and firing successions of women workers in order to have more women "frozen" as cannery workers for the peak season.

She also reports the F. B. Huxley and Son, Ontario New York, as having very bad housing conditions for their migrant workers and also poor working conditions in the plant. For the most part other canneries visited in this section of the State have improved over a period of time, but she feels that the Huxley and Son firm is still very backward. The majority of the labor comes from West Virginia and Kentucky and are both colored and white. The company for some reason has had special dispensations from the Government and this year is benefited from a trailer camp furnished by the Government as well as a dehydrating plant, but it has not lived down its reputation for bad working conditions.

3. Mrs. Sater was also at the Seabrook-Deerfield Company this season and reports that many of their camps are far below

standard with overcrowded and very inadequate sanitary facilities. As you probably know, this company is probably the largest concern of its kind in this section of the country.

Mrs. Sater calls attention particularly to the fact that government agencies are recruiting labor for this company with no apparent regard to the fact that housing is inadequate for the many hundreds recruited. She visited at least seven of the camps scattered over their widespread fields and recommendations in almost every case were made covering provision for laundry facilities, sanitary toilets, shower baths, sanitary inspection, garbage collection, etc.

War Manpower

August 24, 1943

Miss Mary Gilson
War Manpower Commission
55 Tremont Street
Boston, Massachusetts

My dear Miss Gilson:

Your question in regard to the employment of women on drop forge work in U. S. plants was referred to me by Miss Anderson.

On examining the description of jobs on which women are employed in the plants scheduled by our field agents, we find in a shipyard schedule on the Pacific Coast this notation:

Forging machines (Training time 6 months to 1 year)

Women are operating forging machines or air hammers for forming hot metal stock and for trimming waste off forgings. Women operated the controls and at times held a die over the hot metal piece while the hammer struck the hot metal stock.

You may be interested to know that in our English reports on women's jobs, we find women employed on this type of work in England also.

Sincerely,

IAS:ams

Isadore Spring,
Director of Statistical Section.

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

To—		From—	Re Attached Please—
	Anderson.		Approve
	Nienburg.		Comment
	Larrabee.		Note
	Benham.		Note and return
	Best.		Reply
	Erickson.		Draft of reply
✓	Files.		Signature
	Hyde.		Would like to discuss
	Manning.		File
	Mettert.		
	Pidgeon.		Date
	Robinson.		Note:
	Smith, F.		
	Spring.		
	Steel.		
	Stitt.		

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War Manpower

Apprentice-Training Service

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

601 Feller Building
Harrisburg, Pennsylvania
August 19, 1943

WOMEN'S BUREAU
AUG 21 1943
DEPARTMENT OF LABOR

Mary Anderson, Director
Women's Bureau
U.S. Department of Labor
Washington, D.C.

Dear Miss Anderson:

Enclosed you will find a supply of reprint of article entitled: "State Laws and Women Workers" which appeared recently in "Bus Transportation".

In case you wish a further supply of this reprint please advise and we will forward same to you.

Very truly yours,

C. Warren Stapleton

C. Warren Stapleton,
Senior Transport Training Technician

kim: a sent a few to Augusta, the balance to Hgrs in Phila



Files
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

Apprentice-Training Service
Division Office

WOMEN'S BUREAU
DEPARTMENT OF LABOR

601 Feller Building
Harrisburg, Pa.
July 13, 1943

Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

The request in your letter of June 18 concerning reprints of the article which you wrote for the magazine, Bus Transportation, and which appeared in the May issue, has been received.

We are making arrangements with the editor of the magazine to supply us with 150 copies of the reprint which will be forwarded to you as soon as they are available.

Yours sincerely,

William J. Moore,
Assistant Director



War Manpo.
Files

25

June 18, 1943

Mr. William J. Moore
Assistant Director
Apprentice-Training Service Division Office
War Manpower Commission
601 Feller Building
Harrisburg, Pa.

My dear Mr. Moore:

I want to thank you for sending me a reprint of our article on "State Laws and Women Workers." I am glad that the article met your approval and that you believe it will serve a useful purpose. I am wondering if it will be possible for you to furnish us with 150 copies, as we are frequently asked for material relating to the employment of women in transportation.

Sincerely yours,

M:L.S:MMG

Mary Anderson, Director.

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

Apprentice-Training Service
Division Office

WOMEN'S BUREAU
JUN 14 1943
DEPARTMENT OF LABOR

601 Feller Bldg.
Harrisburg, Pa.
June 11, 1943

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Under date of May 4, I sent you a letter regarding the article which you prepared for the Bus Transportation magazine, and which I believe you did not receive. I am enclosing a copy of it, therefore, with a reprint of the referenced article.

Yours sincerely,

William J. Moore

William J. Moore,
Assistant Director

Encls.

FOR VICTORY
BUY
UNITED STATES
WAR
BONDS
AND
STAMPS

Apprentice-Training Service
Division Office

603 Feller Building
Harrisburg, Pa.
May 4, 1943

Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

In connection with the article which you provided for Bus Transportation magazine, "How State Laws Affect Women Workers in the Bus Transportation Industry," I should like to let you know that the Editor, Mr. Earl F. Theisinger has commented in letters to us as follows:

> April 22....."I want to thank you for your letter of April 14 inclosing the fourth article in the series on manpower. Miss Anderson really did a bang-up job on this and I think the point she emphasizes will be of great interest to every bus company interested in employing women."
>
> April 27....."The article IV on Women's Laws is certainly very timely in view of the extreme amount of interest in the subject at the moment."

We thought that the article was an excellent presentation, and we are more than pleased to find the Editor of the magazine of like opinion.

Thank you for your fine cooperation in this respect, and with kindest personal regards, I am

Sincerely yours,

William J. Moore,
Assistant Chief

WJM/af
ccs: Washington
Goshen

State Laws and Women Workers

By MARY ANDERSON
Director, Women's Bureau
U. S. Department of Labor

This is the fourth article in the series "Training . . . Key to the Skilled Help Shortage," prepared by C. Warren Stapleton, Training Specialist, Apprentice and Training Service, War Manpower Commission.

Reprinted from BUS TRANSPORTATION ✦ *May, 1943*

State Laws and Women Workers

By **MARY ANDERSON**
Director, Women's Bureau
U. S. Department of Labor

This is the fourth article in the series "Training . . . Key to the Skilled Help Shortage," prepared by C. Warren Stapleton, Training Specialist, Apprentice and Training Service, War Manpower Commission.



AMONG the various factors connected with training for war time replacement of personnel, the employment of women is of primary importance. In employing them, however, it is well to be familiar with various laws governing their employment. Accordingly, Miss Anderson very kindly agreed to prepare this article. It goes without saying that Miss Anderson is one of the foremost authorities in this field. Her sympathetic interest in the employment of women in the bus transportation industry, as expressed in this article, will, I am sure, be helpful to those faced with the problem and responsibility of training women for the vitally essential work of manning, maintaining, and operating bus equipment.

C. WARREN STAPLETON

WITH WOMEN the major source of available labor supply in the bus transportation industry today, it is becoming increasingly important for bus companies to know the laws affecting their employment, especially in mechanical work and in the heavier tasks normally performed by men.

State labor laws for women may be classified in three principal groups: (1) Laws regulating women's hours of employment; (2) Laws regulating working conditions or prohibiting certain hazardous employment; (3) Laws providing for the establishment of minimum wages.

Bus companies which have customarily employed women as cleaners, restaurant workers, in other service occupations, and in offices, are already acquainted with applicable minimum-wage regulation in the states in which they operate. It is believed that the new types of jobs which women are entering in the bus transportation field will be little affected by such regulation, inasmuch as minimum-wage rates have been established chiefly for the occupations in which women are customarily engaged and which are traditionally low paid. Thus, the highest minimum-wage rate now in force in any state is $18 for a 40-hour week. It is expected that bus transportation companies will pay women the rate for the job, as is now the general practice in industry, so their wages will be well above the legal minimum.

State hour legislation for women has for its express purpose protection of the health and well-being of women workers, and all states but five have maximum-hour legislation. Employers unfamiliar with state hour laws for women may be surprised to learn that in some states the law gives legal sanction to maximum daily or weekly hours which they know from their own experience are too long for efficient operation. It should be stated at the outset, therefore, that some of these laws were enacted years ago and establish standards which industry has long since discarded as in excess of human capacity and unproductive.

Many employers voluntarily adopt hour schedules which safeguard the health and efficiency of their employees. Experience has shown that standards which protect workers' health also make possible the greatest efficiency and result in greatest output. The health and efficiency of workers in the bus transportation industry are matters of special importance because they affect directly the safety of the public. For this reason, bus companies which expect to employ women should be interested not merely in

the precise legal requirements of the various states in which they operate but also in standards generally recognized as most satisfactory for women's employment.

The Women's Bureau, on the basis of its continuous experience with the employment of women from World War I to the present time, recommends the following basic standards for effective employment of women in the war period: An 8-hour day, with adequate rest periods and at least 30 minutes' time off for lunch; a work week of 48 hours or less; at least one day off in seven. Work schedules based on these standards insure the women workers' greatest efficiency over an extended period of time.

The hour schedules recommended by the Women's Bureau for women in all occupations have also been recommended for workers in war plants, both men and women, by the eight government agencies chiefly responsible for maximum war production (War Department, Navy Department, Maritime Commission, War Manpower Commission, War Production Board, Public Health Service, Labor Department, Commerce Department). Early in 1942, these agencies issued a joint statement of policy endorsing the 8-hour day, 48-hour and 6-day week, and 30-minute midshift meal period, stating that experience has shown these standards to be best for sustained maximum output. This policy was subsequently endorsed by the Office of Defense Transportation.

Laws establishing a maximum 8-hour day as a standard for women in some or all occupations are now in effect in 18 states and the District of Columbia; a maximum work week of 48 hours or less in 23 states and the District of Columbia; one day's rest in seven in 23 states and the District of Columbia. (See accompanying charts.) Twenty-five states and the District of Columbia require an interval for meals. In other words, in more than half the states in which women's maximum hours of employment are regulated by law, the standard 48-hour week which the Women's Bureau recommends and which industrial experience has proved most satisfactory is now the legal requirement. Fifteen states prohibit, and two others regulate, specified types of employment during certain hours of the night for women 21 and over.

Maximum-Hours and Day-of-Rest Laws

State hour laws vary as to industries covered. Some are of general coverage, and apply to any "gainful occupation" with specific exclusions. Others specify certain occupations without reference to any particular industry. In general, women employed by bus transportation companies may be said to be covered by a state law which expressly covers the transportation industry, or by a law which does not exclude this industry, but covers any "gainful occupation", or by a law which covers the specific occupations in which workers in this industry are employed.

Coverage Of All Women Bus Employees

	Hours Per Day	Hours Per Week	Days Per Week	
Arizona	8	48	6	13-hour over-all day
California	8	48	6	13-hour over-all day in restaurant
Dist. of Col.	8	48	6	.....
Illinois	8	48	6	.....
Louisiana	8	48	6	.....
Nevada	8	48	6	12-hour over-all day
Ohio	8	48	6	10-hour over-all day
Utah	8	48	...	12-hour over-all day
Pennsylvania	8	44	5½	10-hour over-all day
North Dakota	8½	48	6	.....
Arkansas	9	54	6	.....
Idaho	9	...	...	.....
Massachusetts	9	48	6	.....
Missouri	9	54	...	.....
New Mexico	8	48	...	.....
Oklahoma	9	54	...	.....
Texas	9	54	...	.....
Wisconsin	9	50	...	.....
Maine	...	54	...	.....
Oregon	10	60	...	.....
South Dakota	10	54	...	.....
Tennessee	10½	57	...	.....

In addition to laws limiting maximum daily and weekly hours and providing for a weekly day of rest, 17 states have laws or orders regulating or prohibiting the employment of women 21 and over during certain hours of the night. These laws cover only specifically enumerated occupations. Frequently included are three occupations in which women are likely to be employed by bus transportation companies — mechanical, office, and restaurant work. One or more of these occupations are covered by night-work laws in the following states (the prohibited or regulated hours appearing in parentheses):

Connecticut—mechanical, restaurant (10 p.m.–6 a.m.)

Delaware—mechanical (11 p.m.–6 a.m.); telephone and telegraph office or exchange, and restaurant (8-hr. maximum for work between 11 p.m. and 7 a.m.)

Maryland—mechanical (8-hour maximum for work between 10 p.m. and 6 a.m.)

Massachusetts—mechanical (10 p.m.–6 a.m.)

New Hampshire—manual or mechanical (8, 48-hour maximum for work on more than 2 nights a week between 8 p.m. and 6 a.m.)

New York—workshop (10 p.m.–6 a.m.); restaurant not in hotel (12 p.m.-6 a.m.)

Ohio—ticket sellers (10 p.m.–6 a.m.)

Wisconsin—restaurant workers (8, 48-hour maximum for work on more than 1 night a week between 8 p.m. and 6 a.m.); other workers (6:30 p.m.–6 a.m.)

Another type of special provision for women are the meal period laws now found in 25 states and the District of Columbia. The length of time required for meals by these laws varies. Meal period provisions applicable to one or more occupations (usually mechanical, restaurant, or office in the bus transportation industry) may be summarized as follows:*

[1] (1) *30 minutes or less:* Arkansas, California, Delaware, Kansas (20 minutes), Kentucky, Maryland, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Pennsylvania, Utah; (2) *45 minutes:* Delaware, District of Columbia, Louisiana (dinner), Massachusetts, New York, Oregon, Washington; (3) *1 hour:* Maine, New York, Washington, Wisconsin.

Many of the laws set a maximum daily number of consecutive hours beyond which further employment is prohibited unless a meal period of the specified length is given. The purpose of these laws is not merely to give the worker food but to allow her a short break in daily routine. Experience has shown that rest and an opportunity to relax are almost as important as food in preventing fatigue of women workers.

The preceding data on maximum hour, day of rest, and night-work and meal period laws relate to the basic provisions of these laws. The following states have suspended operation of some or all of these provisions for all employees in certain industries for the duration: California, Indiana, North Dakota, and Texas. In many other states, emergency provisions—either contained in the hour laws or existing independently of them—have been invoked by state labor departments for the purpose of authorizing individual employers to employ women longer hours during short emergency periods. The procedure in effect in most States is as follows:

(1) The employer makes a request to the state labor department for exemption from specified legal provisions during an emergency period; (2) The state labor department investigates the need for an exemption, looking into such factors as labor shortage, training facilities, efficiency of operation. If the exemption is granted, it applies only to specified employees and operations and is of limited duration. To date, the states in general have confined the granting of exemptions to war-production industries. All of the states have granted night-work exemptions in these industries. Few states have relaxed provision of the day-of-rest laws to permit 7-day continuous operation.

Laws Regulating Working Conditions

At the request of ODT, in August 1942, the Women's Bureau drew up

* Length of lunch hour varies by occupation in Delaware, Maine, New York, Washington and Wisconsin.

recommended working condition standards for the employment of women in specific types of work in the transportation industry. In the bus transportation field, the bureau believes that operation of intercity buses, or of local buses in congested metropolitan area, is a suitable occupation only for women of exceptional physical strength.

Operation of a bus requires great muscular strength and is a very heavy job even for a man. If it becomes necessary to use women in this type of work, special medical examinations should be given. Where women are employed in this capacity, the following health needs should be met:

1. Need for good posture seats;
2. Need for regular hours, regular meal periods, regular shifts;
3. Need for adequate facilities for rest and food at terminals.

Standards recommended by the bureau for shop work may be briefly summarized as follows:

1. Prevention of accidents through (a) machine guarding; (b) good plant housekeeping; (c) instruction in safe practices.
2. Adequate protection against hazards of fumes.
3. General plant sanitation including: (a) Adequate washing facilities; (b) adequately equipped lunch room, dressing room, and rest room; (c) sanitary drinking facilities; (d) separate toilets for women; (e) ventilation.
4. In-plant medical supervision.
5. Avoidance of strain through: (a) installation of lifting devices; (b) instruction in safe methods of lifting; (c) physical examinations related to type of work.

The Women's Bureau is prepared to furnish employers with detailed information on training women workers in safe methods of lifting.

Weight-Lifting Laws and Regulations

Laws incorporating working conditions standards as outlined in the preceding paragraphs and recommended by the Women's Bureau, usually apply equally to men and women. However, with respect to weight-lifting, states have recognized that women are peculiarly subject to injury and special restrictions have been set up surrounding women's employment at work of this kind.

In California, Massachusetts, Michigan, Ohio, Oregon, Pennsylvania, Utah and Washington, women may not perform tasks that involve the lifting or carrying of heavy weights.

Laws which apply to women's employment in bus transportation set specific maximum loads as follows:

California:
25 pounds maximum for lifting;
10 pounds up and down stairways of 5 feet or over.

Michigan:
35 pounds maximum for lifting;
20 pounds ascending stairs.

Ohio:
25 pounds maximum for lifting.

Oregon:
25 pounds maximum for lifting;
15 pounds for carrying more than 10 feet.

Utah:
30 pounds maximum for lifting;
15 pounds for carrying.

Prohibited Employment for Women

Six states (Connecticut, Massachusetts, Missouri, New York, Vermont, and Washington) by law prohibit the employment of women for a specified period before and after childbirth. The period during which women may not be employed is 4 months before and 6 weeks after childbirth, in Washington; 4 weeks before and 4 weeks after, in Connecticut; 3 weeks before and 3 weeks after, in Missouri; 2 weeks before and 4 weeks after, in Massachusetts and Vermont; and 4 weeks after, in New York.

Nine states (Colorado, Kansas, Michigan, North Dakota, Oklahoma, Oregon, Pennsylvania, Washington and Wisconsin) prohibit the employment of women under conditions variously described as detrimental to their health, safety, morals or welfare.

Laws prohibiting women's employment in one or more specific occupations are found in all except 22 states and the District of Columbia. The states in which no such prohibition exists are: Delaware, Florida, Georgia, Idaho, Iowa, Kansas, Kentucky, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, and West Virginia.

In the 26 states that have laws prohibiting employment in specific occupations, the occupation most commonly prohibited for women is mining. Prohibitions which appear to have some application to the bus transportation industry may be summarized as follows: (1) Cleaning moving machinery: prohibited for women in Louisiana, Minnesota, and Missouri; (2) Trucking: prohibited in Ohio and Pennsylvania; (3) Employment as express driver, baggage handler, freight handler: prohibited in Ohio; (4) Work on moving abrasives: prohibited in Michigan, New York and Ohio.

The present discussion of the application of labor laws to employment of women by bus companies has been concerned solely with state laws. Bus companies engaged in interstate commerce will undoubtedly have a further question: How the employment of women in occupations covered by regulations of the Interstate Commerce Commission under the Federal Motor Carrier Act of 1935 (U. S. C. Title 45, Ch. 8) will be affected by state labor laws for women.

Although the Interstate Commerce Commission is authorized under that act to establish maximum hours for all employees whose activities affect the safety of operation, to date the commission has regulated hours of service only for drivers and helpers. There is no question but that state hour laws for women would apply to occupations for which the commission up to this time has not issued regulations.

The Women's Bureau has made a special study of the application of state laws to the interstate commerce field, and would be glad to receive questions and comments from employers interested in having more detailed information concerning this subject, or concerning any standards or laws discussed in this article.

The accompanying tables show the extent of coverage of women in the bus transportation industry by state laws. Full particulars on this subject may be obtained from the appropriate State Department of Labor or from the Women's Bureau, U. S. Department of Labor, Washington, D. C.

Coverage of Specific Occupations

(The first figure in each column indicates Hours Per Day; the second figure, Hours Per Week; and the third figure, Days Per Week)

	Mechanical	Workshop	Office	Cleaners	Janitors	Restaurant	Telephone	Telegraph
Colorado	8	.....	.....	.....	.....	8-48-6	.....	.....
Kansas	.....	.....	.....	8-48	8-48	8-48	.....	.....
Montana	8	.....	.....	.....	.....	8	8	8
New York	.....	8-48-6	.....	.....	.....	8-48-6	.....	48-6
Pennsylvania	.....	.....	.....	.....	.....	48-6	.....	.....
Oregon	.....	.....	8-44-6	8-44-6	8-44-6	8-44-6	8-44	8-44
Washington	8	.....	8-48-6	.....	.....	8 6	.....	.....
Wyoming	8-48 (12-hr. overall day)	.....	.....	.....	.....	8-48	.....	.....
Maine	9-54	9-54	.....	.....	.....	.....	.....	.....
Michigan	.....	9-54	9-54	.....	.....	9-54	.....	.....
Rhode Island	9-48	.....	.....	.....	.....	.....	.....	.....
Vermont	9-50	.....	.....	.....	.....	.....	.....	.....
Virginia	.....	9-48	.....	.....	.....	9-48	.....	.....
Delaware	10-55-6	.....	.....	.....	.....	10-55-6	10-55-6	10-55-6
Indiana	10-6	.....	.....	.....	.....	.....	.....	.....
Kentucky	10-60	.....	.....	.....	.....	10-60	10-60	10-60
New Hampshire	10½-54	.....	.....	.....	.....	.....	.....	.....
New Jersey	.....	.....	.....	.....	.....	10-54-6	.....	.....

Comment

No answer needs War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

Apprentice-Training Service
Division Office

WOMEN'S BUREAU
MAY 6 - 1943
DEPARTMENT OF LABOR

603 Feller Building
Harrisburg, Pa.
May 4, 1943

Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

In connection with the article which you provided for Bus Transportation magazine, "How State Laws Affect Women Workers in the Bus Transportation Industry," I should like to let you know that the Editor, Mr. Earl F. Theisinger has commented in letters to us as follows:

April 22....."I want to thank you for your letter of April 14 inclosing the fourth article in the series on manpower. Miss Anderson really did a bang-up job on this and I think the point she emphasizes will be of great interest to every bus company interested in employing women."

April 27....."The article IV on Women's Laws is certainly very timely in view of the extreme amount of interest in the subject at the moment."

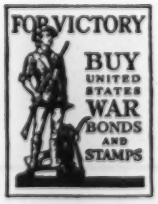
We thought that the article was an excellent presentation, and we are more than pleased to find the Editor of the magazine of like opinion.

Thank you for your fine cooperation in this respect, and with kindest personal regards, I am

Sincerely yours,

William J. Moore

William J. Moore,
Assistant Chief



War Manpower Files
no answer needs.
Stitt has re Robinson has that letter

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

APPRENTICE
TRAINING SERVICE

April 12, 1943

Miss Louise Stitt
Director, Division of Minimum Wage
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Stitt:

Thank you for the excellent service which you and Miss Angus gave on the article for "Bus Transportation."

I am enclosing two copies of a recent study on "Training Women Workers as Observed in Three Large War Production Plants" which may be of interest to you in your work in connection with women in industry. A limited number of copies are available for distribution.

Very truly yours,

Mary Curran

Mary Curran
Associate Training Specialist

Attachments



War Manpower

August 6, 1943.

Miss Dorothy Italie,
Publicity Department,
War Manpower Commission,
1405 Locust St.,
Philadelphia, Pa.

My dear Miss Italie:

Your letter of July 26 to the U. S. Department of Labor has been referred to the Women's Bureau. We do not have pictures illustrating Job Family Technique in placement work. However, the enclosed photographs from Boeing may be of some interest to you. They were published in the "Boeing News" and the whole series was entitled "Woman's Place is Just Like in the Home." Will you please return them after you have finished with them?

Sincerely yours,

MA/RFN/nb

Mary Anderson, Director.

~~FEDERAL SECURITY AGENCY~~
~~SOCIAL SECURITY BOARD~~

UNITED STATES EMPLOYMENT SERVICE
WAR MANPOWER COMMISSION
1405 Locust Street
Philadelphia, Pa.

OFFICE OF
THE LOCAL MANAGER

Labor Standards

Mary V. Robinson, Information Dir.
Women's Bureau
Room 1316

July 26, 1943

WOMEN'S BUREAU
AUG 4 1943
DEPARTMENT OF LABOR

U. S. Department of Labor
Washington, D. C.

Gentlemen:

We are interested in being supplied with pictures which you may have in stock, which illustrate the Job Family Technique in placement. For example, we should be interested in pictures which present the transition from barber shop to war shop, from jewelry to small parts inspector, etc.

Thank you for your cooperation.

We do not have any material to fill this request. Would you be good enough to answer letter, sending pictures if possible? MBD

Very truly yours,

James E. Heffernan
Area Supervisor

By Dorothy Italie
Dorothy Italie
Publicity Department

RECEIVED - LABOR
Chief Clerk
JUL 30 1943
AM 9|10|11|12|1|2|3|4|5|6 PM

di

RECEIVED
JUL 31 1943
DEPT. OF LABOR
DIVISION OF
LABOR STANDARDS

FOR VICTORY
BUY
UNITED STATES SAVINGS BONDS AND STAMPS

JUL 30

Files
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
AUG 4 1943
DEPARTMENT OF LABOR

August 3, 1943

Miss Mary Anderson
Director, Women's Bureau
Department of Labor
14th and Constitution Avenue
Washington, D. C.

Dear Miss Anderson:

In compliance with your request of July 20, 1943 made to Mr. Lawrence Appley, we are enclosing two copies of memorandum, "Utilization of Women in War Production in Great Britain, Germany, and Russia."

1951 Lab

Sincerely yours,

Louis Levine

Louis Levine, Chief
Reports and Analysis Service

Enclosures



War Manpower

25

July 27, 1943

Miss Rilla Schroeder
Information Manager
Bureau of Placement
War Manpower Commission
Washington, D. C.

My dear Miss Schroeder:

As you probably know, there are no current overall figures available on employment of American women at war comparable to those on employment of British women. However, we are enclosing some estimates which we hope will be useful to you.

Sincerely,

Mary Anderson, Director

Enclosure

MA:IAS:ams

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

July 17, 1943

WOMEN'S BUREAU
JUL 19 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Director of Women's Bureau
U. S. Department of Labor

Dear Miss Anderson:

Since the publication of the attached bulletin we have had numerous requests for comparable figures on American women. I wonder if your Bureau can supply any of them.

We do not contemplate a pamphlet but we would like, if possible, to have some figures to use in replying to questions on the subject.

Thank you for anything you can do for us.

Cordially yours,

Rilla Schroeder

Rilla Schroeder
Information Manager
Bureau of Placement

Attachment

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

APPRENTICE
TRAINING SERVICE

July 22, 1943

WOMEN'S BUREAU
JUL 24 1943
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington 25, D. C.

Dear Miss Anderson:

Thank you for sending me the list of your field representatives and their office addresses. I am sending the names of your field representatives in each of our regions to our regional supervisors, as I am sure they will be glad to know the representative of the Women's Bureau with whom the field staff can confer on problems which come up in servicing plants on over-all training programs involving women workers.

I am attaching a list of the names and addresses of the members of our field staff in charge of the offices in each location, in the event that you may wish to send this information to your field representatives.

It was a great pleasure to meet both Miss Mohr and Miss Margaret Anderson during my recent field trip to the west coast. Members of our staff there are very anxious to work with them in every possible way.

Sincerely yours,

Mary Curran

Mary Curran
Associate Training Specialist

Enc.



July 22, 1943

War Manpower Commission

APPRENTICE-TRAINING SERVICE

Our Region	
I	E. K. Jenkins, Regional Supervisor Rm. 1140, Old South Building 294 Washington Street Boston 8, Massachusetts :Tel. Hubbard 6050
II	Frank J. Griffin 201 State Office Building Franklin & Court Streets Buffalo, New York :Tel. Washington 4720, Ext. 370
III	Glenn H. Feller, Regional Supervisor 922-925 Girard Building 21 South 12th Street Philadelphia 7, Pa. :Tel. Rittenhouse 9420, Ext. 019
V	John E. Morley, Regional Supervisor Rm. 687, Union Commerce Building Cleveland, Ohio :Tel. Cherry 7900, Ext. 599
V	Thomas P. Ross 1164 Penobscot Building Detroit, Michigan :Tel. Randolph 1280, Ext. 60
V	Robert F. Kirk c/o Kentucky State Employment Service 620 South Fifth Street:Tel. Wabash 5841 Louisville, Kentucky
VI	Cecil L. Utterback, Regional Supervisor 222 W. Adams Street Chicago, Ill. :Tel. Andover 3600, Ext. 499
VII	J. M. Parmelee, Regional Supervisor Rm. 600, Grand Theatre Building Atlanta, Georgia :Tel. Walnut 4121, Ext. 478
IX	Taylor F. Custer, Regional Supervisor Rm. 2309, Fidelity Building 911 Walnut Street Kansas City 6, Missouri :Tel. Vi. 4125
XII	Broncel R. Mathis, Regional Supervisor 701 Western Furniture Exchange and Merchandise Mart 1355 Market Street San Francisco 3, California :Tel. Klondike 2-2300, Ext. 713
XII	Walter A. Lee 417 Old Times Building 5th & Olive Way Seattle, Washington :Tel. Elliott 8754

Comment War
see letter Dept.

25

July 24, 1943.

Mrs. Dorothy B. Hooper,
Normoyle Ordnance Depot,
Office of the Plant Security Officer,
San Antonio, Texas.

My dear Mrs. Hooper:

Reply to your letter of June 9 has been delayed for various reasons, mainly because the government officials who could answer your question about women safety engineers in government service have been out of town. The answer is No, if bonafide safety engineering work is meant. On the other hand, the Chicago Ordnance District has a number of women trained for safety inspection work (they do not need to have engineering degrees), and by writing direct to that office you can get further information. We appreciate having your job description to add to our material on this subject.

Sincerely yours,

MA/RFN/nb

Mary Anderson, Director.

NORMOYLE ORDNANCE DEPOT
Office of the Plant Security Officer
San Antonio, Texas

Hooper/njd

9 June 1943



Mrs. Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Mrs. Anderson:

In reply to your letter of February 19, 1943, I am now able to furnish you some information as to my position and duties. To date this department has been in a long and turbulent state of organization and reorganization.

I am enclosing a copy of my job sheet together with a copy of the outline of the course in Industrial Accident Prevention which I am teaching.

My class is made up entirely of women. A. & M. College of Texas claims this is the first all woman class of this kind taught by a woman. Could you tell me if this is so? I would also appreciate your giving me the names of other women who are doing Safety Engineering work with the Government.

I want to thank you for your many bulletins on Women In Industry. They have been of invaluable assistance to me and of immense interest to my class.

You might be interested to know that this Depot has a woman Public Relations Officer. She is Miss Helen Grace McCoy.

Thanking you for your interest and assistance, I am

Very truly yours,

Dorothy B. Hooper

Dorothy B. Hooper
(Formerly Dorothy B. Crenshaw)

Incl. - 1 Job Sheet
1 Outline

CLASSES IN AN

INDUSTRIAL SAFETY ENGINEERING

ACCIDENT PREVENTION COURSE

WILL BE ORGANIZED

TUESDAY, APRIL 6th, 1943 -- 7 P.M. -- 1st and 3rd shift day and morning workers

WEDNESDAY, APRIL 7th, 1943 -- 11 A.M. -- 2nd shift evening workers

PLAZA HOTEL, 309 S. St. Mary Street, San Antonio, Texas

SPONSORED BY: A. & M. College of Texas cooperating with the U. S. Office of Education as a part of the MANPOWER CONSERVATION and WAR TRAINING program.

LENGTH OF COURSE: 12 weeks, 24 sessions, total 72 hours. (Subject Outline and qualification requirement attached)

INSTRUCTORS: Trained Safety Engineers, Consultants and Specialists headed by L. C. Picnot, Special Safety Agent of the U. S. Department of Labor and the National Committee for the Conservation of Manpower in War Industries.

NO COST EXCEPT TEXT BOOKS -- $3.25

ENROLLMENT Prior to Starting Date will speed organization.

Enrollment forms can be had from:

L. C. Picnot, 711 Alamo National Bank Bldg., Phone G 8331.
C. R. McKinney, Safety Office, Duncan Field.
Dr. Arthur B. Pyterek, S.A. Q.M.D. Depot Surgeon.
Mrs. Dorothy B. Crenshaw, Safety Office, Normoyle Ordnance Depot.
Lt. I. B. Allen, Safety Officer, Ordnance Depot. S.A. Arsenal.
Lt. W. G. Carnahan, Chief Civilian Personnel Section, Ft. Sam Houston
M. H. Krugg, Safety Consultant, Civilian Personnel Section, Ft. Sam Houston.
Layton A. Vann, Safety Engineer, 518 Sixth St.
Miss Cornelia H. Cazell, 314 East Ashby Place, Phone G-8331, or 711 Alamo National Bank Bldg.
Safety Officer, Randolph Field.
Safety Officer, Camp Bullis.

ACCIDENTS AID THE AXIS! HURTS HELP HITLER!

WE CAN AND MUST STOP SUCH SINFUL SABOTEURS!

BE ALERT TODAY TO BE ALIVE TOMORROW

TUITION FREE INDUSTRIAL SAFETY ENGINEERING COURSE
FOR OFFICIALS, OWNERS, MANAGERS, SUPERINTENDENTS, FOREMEN,
FOREWOMEN, LEADERMEN, LEADERWOMEN, SAFETY OFFICIALS, SAFETY HELPERS,
INSTRUCTORS, COUNCILORS, AND OTHERS DIRECTING AND TRAINING
WORKERS IN WAR AND ALLIED INDUSTRIES

A. & M. COLLEGE of TEXAS, cooperating with the U. S. Office of Education and National Committee for the Conservation of Manpower in War Industries, is sponsoring a seventy-two hour INDUSTRIAL SAFETY ENGINEERING COURSE IN ACCIDENT PREVENTION TRAINING to conserve manpower to further the Nation's war aims, to be taught through lectures, conferences, discussions, pictures and illustrations by trained Safety Instructors and Specialists. Certificate will be issued to those completing.

The Course covers:

Session No.	Subject
1.	Introduction to Industrial Safety - History, background and development
2.	Economical advantages of Accident Prevention - Savings in operating costs, materials and men, in morale and production. Hidden and Uninsurable Cost paid by the injured, his family, his employer and his country. Four to One and Why?
3.	Injury Sources, Causes and Remedies - Accident costs, insurance rates, compensation and loss. Frequency and severity explained and simplified.
4.	Appraising Safety Performances - Plant safety, management and men attitude, accident records (their use and value). Safety needs of small plants.
5.	Safety Organization - How obtained and maintained. The part management, foremen, supervisors and men must play in large and small plant Safety.
6.	Job Analysis for Safety - Importance in relation to plant inspection and accident investigation. Top Safety Performance and how acquired in every plant.
7.	Safety in Layouts and Plant Planning - In relation to Safety in maintenance, production and cost of operation.
8.	The "New Worker" Safety Problem - Physical fitness, mental attitude, causes of high accident rates, proper and improper training, plant adaption and job simplification. Putting the worker at ease and developing a spirit of Loyalty and Safety Fellowship.
9.	Plant Housekeeping-- Handling loading, unloading, storing and protecting materials and machinery. Maintaining aisles, stairs, passages, warerooms, docks, loading platforms, tramways etc.
10.	Safeguarding Machinery-- General discussions, Metal working Machinery, Woodworking Machinery, Laundry, Textile and other Machinery. How to make each Machine Safe for the Operator and Others.

11. Hand Tools-- Care and right use, tool rooms, repair shops, right and wrong tool for the job.

12. Fall Prevention-- Floors, overhead work, stairs, ladders, scaffolds, portable steps, toeboards, guardrails, manhole guards, porthole guards, hoists ropes, beams and swings. Moving machinery, vehicles, cars, trains, and trams.

13. Maintenance and Safety-- Maintenances hazards compared with construction hazards, safe guards, precautions and remedies. First Aid and its importance.

14. Low Voltage and other Electrical Hazards-- What to look for, what to do and what to refrain from doing. Electric shock, First Aid, Artifical Respiration.

15. Fundamentals of Planning, Safety Inspection and Production Control, Fatigue and Efficiency.

16. Responsibility of Management, Foremen and Men for Safety and Production, Safety Fellowship and Mutual Interest Problems.

17. Industrial Health Hazards-- Dusts, Vapors, Fumes, Toxic Poisons, Sanitation, Ventilation, Water, Clothing, Food, Rest and Recreation for Safety and Efficiency.

18. Protective clothing and equipment-- Goggles, Respirators, Safety Shoes, and proper Safety clothing for the job.

19. Safety Psychology-- Think, Act, Live, Work, Play, Rest and Relax safely. Do the job better, easier and safer by THINKING - Careful Thinking.

20. Illumination-- General Plant lighting, Machine lighting, Shadows, Glares, Fatigue from wrong lighting as accident cause. Helps and remedies.

21. Foundries-- Molten metals and welding hazards, Burns, Safety equipment needed and how to use it.

22. Common explosives and explosions-- Causes, precautions, Storage and care of explosive materials, safety containers and practices.

23. Fire Prevention and Protection-- Equipment, care and use. What to do and What not to do in case of fire in building or in case clothing is on fire. Asphyxiation, Suffocation, Burns and First Aid treatment.

24. Safety Standards, Health and Accident reports, Safety records, values and uses. Practical application, Review, and Summation of the Fundamental Principles of Accident Prevention.

NOTICE OF DESIRE TO TAKE THE COURSE CAN BE GIVEN THROUGH _____

at_____or in person, or mail to A. & M. COLLEGE HOUSTON OFFICE 823 Commerce Building, Houston, Texas. Phone Capitol 7839.

War Manpower

July 14, 1943.

Miss Helen Ringe
War Manpower Commission
1778 Pennsylvania Avenue
Washington, D. C.

Dear Miss Ringe:

I am enclosing the collecting of "Help Wanted" ads gotten out by the New York Herald Tribune, about which I told you over the telephone. I shall appreciate your returning it to me when you are through with it.

I was surprised and pleased to see the Women's Bureau mentioned on the next to the last page.

Very truly yours,

Mary V. Robinson, Chief,
Information Division.

LL
Encl.

War Manpower

25

July 17, 1943

Mrs. Mary Curran,
Apprentice-training Service,
War Manpower Commission,
1778 Pennsylvania Avenue,
Washington, D. C.

My dear Mrs. Curran:

At the suggestion of Miss Mohr whom you met in Seattle, I am sending you a list of our field representatives and their office addresses.

Yours sincerely,

Mary Andersen, Director.

Enclosure

MA:CM:am

War Manpower

25

July 2, 1943.

Mr. James A. Downey, Jr., Area Director,
War Manpower Commission,
1005 Frank Nelson Building,
Birmingham 3, Alabama.

Dear Mr. Downey:

Your letter was forwarded to me in Washington where I have been spending a couple of weeks. I hope that my delay in answering has not inconvenienced you.

I shall be happy to plan to come to Birmingham to speak at the two meetings you mention on November 18 and 19. Probably I shall want to come to Birmingham sometime prior to these dates to become better acquainted with the work which women are doing there, but I shall let you know about this later.

In the meantime, if I can be of any special assistance to you please write me. I am leaving Washington today and shall be in my Atlanta office all of next week.

Sincerely,

Martha J. Ziegler,
Field Representative.

MJZ/mr

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

1008 Frank Nelson Building
Birmingham 3, Alabama
June 25, 1943

WOMEN'S BUREAU
JUN 28 1943
DEPARTMENT OF LABOR

Miss Martha J. Ziegler,
Women's Bureau,
U. S. Department of Labor,
Witt Building,
249 Peachtree Street, N.E.,
Atlanta, Georgia

Dear Miss Ziegler:

During the early Fall, it is probable that a survey will be made of the "womanpower" situation here in the Birmingham Area.

I have been asked by one of the outstanding Women's Clubs to obtain a speaker for a November meeting, along the lines of women in war work. I am just wondering if it would be possible for you to take this assignment as I know there is no one in the southeastern territory that could cover the subject better than you. I would also like to get you to speak to one of the Men's Luncheon Clubs on the Thursday before--the dates being November 18 and 19.

You have been planning on coming to Birmingham, I know, so with this much notice, please put Birmingham on your Fall schedule. The women requesting you would like to know as soon as possible so that the printers can go ahead and print their 1943-1944 club books.

Sincerely yours,

James A. Downey, Jr.

James A. Downey, Jr.,
Area Director



Copy to Ziegler attached.

Incoming

OFFICE OF THE REGIONAL DIRECTOR

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

Loew's Grand Theatre Building
Atlanta, Georgia
July 7, 1943

WOMEN'S BUREAU
JUL 9 - 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Director, Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Thank you for your Community Report of Savannah, Georgia, based on information supplied by Miss Martha Ziegler and Mrs. Frances Harnish of the Women's Bureau during their visit to Savannah in May, 1943. The information provided is very helpful.

For your information we are keeping a close watch on developments in Savannah in order that when, as, and if necessary, a well-planned women's recruitment campaign may be instituted. We will appreciate your letting us know of any further developments in this situation which come to your attention.

Sincerely yours,

B. F. Ashe
Regional Director

By J. G. Carney, Jr.
J. G. Carney, Jr., Chief
Bureau of Program Requirements

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

Files

25

July 13, 1943:

Miss Martha Ziegler
5th Floor, Witt Building
249 Peachtree, N. E.
Atlanta, Georgia:

Dear Miss Ziegler:

I thought you would be interested in a copy of this letter, the original of which we have filed here.

Sincerely yours,

CM:cam

Caroline Manning

War Manpower Files

WAR MANPOWER COMMISSION

UNITED STATES EMPLOYMENT SERVICE

OFFICE OF
THE DIRECTOR FOR
Utah

1200 Continental Bank Building
Salt Lake City, Utah
June 25, 1943

WOMEN'S BUREAU
JUN 29 1943
DEPARTMENT OF LABOR

filed

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Enclosed is a detailed Labor Market Developments Report for the Salt Lake labor market area and a brief report from each of the nine other labor market areas in the State of Utah.

The information contained in these reports is restricted.

Very truly yours,

Theodore R. Maughan

Theodore R. Maughan,
Associate Director

Enclosures (10)



War Manpower

June 19, 1943

Miss Mary B. Gilson
War Manpower Commission
10 Post Office Square
Boston, Massachusetts

Dear Mary,

I hasten to send you a reply to your letter of June 18th.

We have no count on women holding supervisory jobs in war plants and shipyards. The enclosed release tells about all we know on women in personnel and industrial relations work in war industries; the monograph (there are no statistics in it) will go to you by regular mail, in case you haven't seen it.

There are no figures either as to how many women now hold government jobs in the higher brackers. The Civil Service Commission says "to an ever increasing extent, with war conditions now here, women have been gravitating into the higher brackers." Our 1942 bulletin showed 205 women in administrative positions of $3000 or over, in 1941. Even if the 1942 count were made for this group, it would be somewhat obsolete.

Of 155,936 women enrolled in government-sponsored training courses for supervisory and engineering and science positions, 42,836 were in production-supervision classes (189,205 in engineering, 5,165 in chemistry, 1,139 in physics). These figures are as of March 31, 1943, cumulative from October 1940, and come from the U.S. Office of Education. We do expect women to fare better in holding on to good jobs, but a categorical answer really can not be made. I believe TWI is doing about as much as can be expected about women workers - it is the plant officials who recommend employees for TWI courses.

Sincerely yours,

rfn

Mary Anderson, Director

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

10 Post Office Square
Boston, Massachusetts

OFFICE OF THE
REGIONAL DIRECTOR

June 18, 1943

WOMEN'S BUREAU
JUN 19 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Women's Bureau
Department of Labor
Washington, D. C.

Dear Mary:

It seems like old times for me to be sending an S.O.S. to you for information.

Will you please send me air mail, Special delivery, the following information:

1. No. of Women now holding supervisory jobs in war plants and shipyards.

2. No. of women in higher brackets in government jobs.

3. No. of women in training for supervisory and technical and highly-skilled jobs.

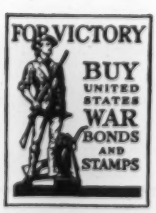
I have to answer these questions at a symposium next Wednesday evening and any specific information you can give me will be welcome. What means do you use for gathering information on these subjects?

Do you see any hope for women faring better in retaining good jobs after this war than after the last?

Cordially yours,

Mary B. Gilson

P.S. Do you think T.W.I officials are encouraging employers to put women in the J.I.T. J.R.T. J.M.T. } training classes?



Manpower

U.S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

June 11, 1943.

Respectfully referred to

Dr. W. W. Charters, Director,
Bureau of Training,
U. S. Manpower Commission,
Washington, D. C.

A copy of a letter from

Miss B. C. Hathaway, Personnel
Department,
J. W. Greer Co.,
119-137 Windsor St.,
Cambridge, Mass.

Re: Information on various
training services offered
without charge by the
U. S; Manpower Commission.

1

The writer has been informed of this reference.

(1990) Mary Anderson Director.

War Manpower

25

June 18, 1943

Miss Mary Curran
Training Specialist
Apprentice Training Service
War Manpower Commission
Washington, D. C.

My dear Miss Curran:

I want to thank you for sending me a copy of the "Report on Training at the South Portland Shipbuilding Corporation." I was glad to receive this report, because our field agents at the present time are studying the work that women are doing in shipyards.

Sincerely yours,

Louise Stitt, Director,
Division of Minimum Wage

LS:MMG

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

APPRENTICE
TRAINING SERVICE

May 12, 1943

Miss Louise Stitt, Director
Division of Minimum Wage
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Stitt:

You may be interested in the enclosed copy of "Report on Training at the South Portland Shipbuilding Corporation."

Very truly yours,

Mary Curran

Mary Curran
Training Specialist

Enc.



ADVANCE RELEASE

ADVANCE RELEASE: For WEDNESDAY MORNING Papers, June 16, 1943.
Jones -- WMC 760
McFall -- WMC 3336

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

PM-4402

Chairman Paul V. McNutt of the War Manpower Commission today announced the appointment of Clinton S. Golden as Vice-Chairman of the Commission. Mr. Golden will serve as advisory to Mr. McNutt on all labor relations aspects of the Commission's program.

The appointment was a further step in the program of Mr. McNutt and Chairman Donald M. Nelson to coordinate the operations of their respective organizations. Mr. Golden will also serve as Vice-Chairman for Manpower Liaison of WPB.

Mr. Golden, who is assistant to Philip Murray of the United Steel Workers of America, has been a member of the Management-Labor Policy Committee of the War Manpower Commission since its inception. His appointment was made with the approval of both the American Federation of Labor and the Congress of Industrial Organizations. Mr. Golden's services were made available to the War Manpower Commission by the United Steel Workers of America. He will be on a $10.00 per diem basis.

In making the appointment Mr. McNutt said: "Mr. Golden is thoroughly acquainted with the intricate problems of industrial relationship. He will bring to the War Manpower Commission expert knowledge and invaluable practical experience. His proven ability to bring management and labor groups together will further strengthen the cordial relations the War Manpower Commission has enjoyed with both groups."

Mr. McNutt also announced that he had consolidated the position of Deputy Chairman with that of Executive Director. Lawrence A. Appley, Executive Director of the WMC, will add to his responsibilities those of the Deputy Chairman.

(END)

X-16976

WOMEN'S BUREAU
JUN 11 1943
DEPARTMENT OF LABOR

War Manpower

TO THE HEADS OF THE DEPARTMENTS AND AGENCIES OF THE FEDERAL GOVERNMENT:

1. You are requested to submit from time to time to the Secretary of the Office of War Mobilization matters which in your judgment require the attention of the Office of War Mobilization. In the case of agencies under a member of the Cabinet or of the War Mobilization Committee, such submissions should be routed to the Secretary through such member. Only matters of basic importance affecting the domestic economy and the war effort, should be submitted to the Secretary for consideration by the Committee. Matters of ordinary routine should continue to be adjusted through normal channels.

2. In submitting a matter to the Secretary, it should be made the subject of a memorandum in duplicate, pointing out succinctly the character of the situation and the nature of the action requested.

3. The departments and agencies believed to be specially interested in the matter should participate in the deliberations of the Committee thereof, when the problem comes under consideration.

4. Where matters of a technical nature, the technical committees will be available to assist the Committee.

James F. Byrnes
Director.

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

To—		From—	Re Attached Please—
.....	Anderson.	✓	Approve .....
~~✓~~	~~Nienburg.~~	.....	Comment .....
~~✓~~	~~[illegible]~~	.....	Note .....
.....	Benham.	.....	Note and return .....
.....	Dern.	.....	Reply .....
.....	Erickson.	.....	Draft of reply .....
.....	Hyde.	.....	Signature .....
.....	Manning.	.....	Would like to discuss .....
.....	Mettert.	.....	File .....
.....	Pidgeon.	.....	Date 6/15
.....	Robinson.	.....	Note:
.....	Smith, F.	.....	
.....	Spring.	.....	
~~✓~~	~~Stitt.~~	.....	
✓	Files.	.....	

OPO 16—24480

~~Return to Miss Abbott~~

WOMEN'S BUREAU
JUN 11 1943
DEPARTMENT OF LABOR

War Manpower

TO THE HEADS OF THE DEPARTMENTS AND AGENCIES OF THE FEDERAL GOVERNMENT:

1. You are requested to submit from time to time to the Secretary of the Office of War Mobilization matters which in your judgment require the attention of the Office of War Mobilization. In the case of agencies under a member of the Cabinet or of the War Mobilization Committee, such submissions should be routed to the Secretary through such member. Only matters of basic importance affecting the domestic economy and the war effort, should be submitted to the Secretary for consideration by the Committee. Matters of ordinary routine should continue to be adjusted through normal channels.

2. In submitting a matter to the Secretary, it should be made the subject of a memorandum in duplicate, pointing out succinctly the character of the situation and the nature of the action requested.

3. The departments and agencies believed to be specially interested should participate in the deliberations of the Committee thereof, when the problem comes under consideration.

4. The technical nature, the technical personnel available to assist the Committee.

James F. Byrnes
Director.

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

To—		From—	Re Attached Please—
.....	Anderson.	✓	Approve .....
~~✓~~	~~Nienburg.~~	.....	Comment .....
~~✓~~	~~[illegible]~~	.....	Note .....
.....	Benham.	.....	Note and return .....
.....	Dern.	.....	Reply .....
.....	Erickson.	.....	Draft of reply .....
.....	Hyde.	.....	Signature .....
.....	Manning.	.....	Would like to discuss .....
.....	Mettert.	.....	File .....
.....	Pidgeon.	.....	Date 6/15
.....	Robinson.	.....	Note:
.....	Smith, F.	.....	
.....	Spring.	.....	
~~✓~~	~~Stitt.~~	.....	
✓	Files.	.....	

OPO 16—24460

~~Return to Miss Robertson~~

WOMEN'S BUREAU
JUN 11 1943
DEPARTMENT OF LABOR

War Manpower

TO THE HEADS OF THE DEPARTMENTS AND AGENCIES OF THE FEDERAL GOVERNMENT:

1. You are requested to submit from time to time to the Secretary of the Office of War Mobilization matters which in your judgment require the attention of the Office of War Mobilization. In the case of agencies under a member of the Cabinet or of the War Mobilization Committee, such submissions should be routed to the Secretary through such member. Only matters of basic importance affecting the domestic economy and the war effort, should be submitted to the Secretary for consideration by the Committee. Matters of ordinary routine should continue to be adjusted through normal channels.

2. In submitting a matter to the Secretary, it should be made the subject of a brief memorandum in quintuplicate, pointing out succinctly

(a) the problem requiring action and the nature of the action recommended;

(b) the heads of departments and agencies believed to be specially affected by the problems who should participate in the deliberations of the Committee or sub-committee thereof, when the problem comes under consideration;

(c) if the problem is of a technical nature, the technical advisers if any who should be available to assist the Committee.

James F. Byrnes
Director.

June 9, 1943.

June 3, 1943

Miss Mary B. Gilson
Office for Emergency Management
War Manpower Commission
10 Post Office Square
Boston, Massachusetts

Dear Mary:

We have a number of bulletins on the point of your request--jobs suitable and not suitable for women. The occupational studies sent you include:

Bul. #189-4. Employment of and Demand for Women Workers in the Manufacture of Instruments--Aircraft, Optical and Fire-Control, and Surgical and Dental.
192-1. Women's Employment in Aircraft Assembly Plants in 1942.
192-2. Women's Employment in Artillery Ammunition Plants in 1942.
192-3. Employment of Women in the Manufacture of Cannon and Small Arms in 1942.

Other reports establish standards for the employment of women under war conditions. I am sending the following:

Spec.Bul.#1. Effective Industrial Use of Women in the Defense Program.
2. Lifting Heavy Weights in Defense Industries.
3. Safety Clothing for Women in Industry.
4. Washing and Toilet Facilities for Women in Industry.
5. Women's Effective War Work Requires Time for Meals and Rest.
6. Night Work for Women and Shift Rotation in War Plants.
7. Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs.
9. Safety Caps for Women in War Factories.
10. Women's Effective War Work Requires Good Posture.

Special Bulletin #2, on page 11, summarizes State weight lifting regulations. We have not recommended a definite pound limit beyond which women may not lift for the reason you state, that lifting may vary from occasional to continuous. The circumstances under which lifting is done

may vary greatly. For example, horizontal lifting uses much less energy than vertical lifting. There are many factors to consider including the physique of the individual woman. We urge that every effort be made to use weight lifting and handling devices to make unnecessary the use of womanpower for lifting. If women are hired for heavy work, we urge that they be chosen on the basis of physical examination that will include consideration of good muscular development. Having been carefully chosen they should be taught correct methods of lifting and carrying. They should be started on relatively light work and gradually increased to heavier work.

A report is in preparation on part-time work. It will be several weeks before it is ready for distribution.

Sincerely yours,

Mary Anderson, Director

Enclosures
MA:ml

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

10 Post Office Square
Boston, Massachusetts

OFFICE OF THE
REGIONAL DIRECTOR

May 29, 1943

WOMEN'S BUREAU
MAY 31 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Women's Bureau
Department of Labor
Washington, D. C.

Dear Mary:

Have you any recent material on "suitable" and "unsuitable" work for women? I have the material published by the Occupational Analysis Section of the United States Employment Service.

I realize that as the war makes manpower problems more acute, our definitions may change somewhat. The other day I visited two plants in which there were some operations the managers considered too "hazardous" for women, whereas I thought they were comparatively light and pleasant jobs merely requiring an adequate i.q., regardless of sex. I find no laws forbidding anyone but a minor to do dangerous work.

I have been going through New England laws relating to women and children and have been unable to find any restrictions on lifting except in Massachusetts, which establishes a maximum of 75 pounds. I believe you recommend 35 pounds, don't you? And <u>continuous</u> lifting of even 35 pounds is not too good. Have you made any recommendations concerning repetitive lifting? And what advice have you published concerning initial and follow up physical examinations?

Has a monograph been issued regarding part-time work for women?

Very sincerely yours,

Mary B. Gilson

(not yet)



Since the WMC has no more serious intent than Stoelman has to use women, I am trying to be useful elsewhere!

M. B. G.

Files
Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

10 Post Office Square
Boston, Massachusetts

OFFICE OF THE
REGIONAL DIRECTOR

WOMEN'S BUREAU
JUN 10 1943
DEPARTMENT OF LABOR

June 8, 1943

Miss Mary Anderson
Women's Bureau
Department of Labor
Washington, D. C.

Dear Mary:

Thank you so much for your letter and the material you so kindly sent me. What I think is needed now is a general article on some of the myths and fancies concerning "suitability" of work for women, and on a closer examination of "dangerous" work which so often is dangerous for anyone with a low i.q. regardless of sex, and which is often very desirable work from every viewpoint for a person who is careful and capable of concentration. There are so many fictions regarding "women's work" which, of course, are now vanishing in the face of the emergencies of the present manpower shortage, but which still serve to obstruct action in many plants.

Very sincerely yours,

Mary B. Gilson

P. S.
When are you coming up to Boston?
M. B. G.



War Manpower

25

June 10, 1943

Mr. Ramy Deschner
War Manpower Commission
815 Connecticut Avenue
Washington, D. C.

My dear Mr. Deschner:

The Employment Stabilization Plan for the Washington, District of Columbia, Area which I recently requested has been received. Thank you for your courtesy in complying with my request in sending this report.

Sincerely yours,

LS:MMG

Louise Stitt, Director,
Division of Minimum Wage.

W. Manpower

May 28, 1943.

Miss Rilla Schroeder
War Manpower Commission
1778 Pennsylvania Avenue
Washington, D. C.

Dear Miss Schroeder:

I consulted our statistician Miss Spring about your outline, and I am enclosing it herewith. You will see that she has made notations as to the sources of the statistical dat which you are seeking, where ever it was possible for her to do so. I am also enclosing some summarized material that will be helpful short cuts in regard to some of the items.

In regard to the sources indicated I feel sure that you will have no trouble in locating them, but should you wish to ask any questions concerning Miss Spring's notations I suggest that you call her, extension 132.

Very truly yours,

Mary V. Robinson, Chief,
Information Division.

MVR/ll
Encl.

War Manpower

May 28, 1943

Mr. C. L. Shartle, Chief
Division of Occupational Analysis and Manning Tables
War Manpower Commission
Washington, D. C.

My dear Mr. Shartle:

Thank you so much for sending us the Supplement to the Dictionary of Occupational Titles.

Sincerely,

Bertha M. Nienburg,
Assistant Director

BMN:LW

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

April 13, 1943

WOMEN'S BUREAU
APR 15 1943
DEPARTMENT OF LABOR

Miss Bertha M. Nienburg
Assistant Director
Women's Bureau
United States Department of Labor
Washington, D. C.

Dear Miss Nienburg:

We are sending you under separate cover two copies of the second addition to the Supplement to the Dictionary of Occupational Titles which has just been released. A few months ago we sent you two copies of the first addition to the Supplement. The new material is designed to keep the Dictionary up-to-date.

This addition contains 504 job definitions and 180 new code numbers, including 23 revisions of definitions contained in Part I of the Dictionary and the Supplement. The procedures to be followed for incorporating this material are outlined on the cover pages of the additions. Due to an error in assembling the pages of the second addition, the cover page will be found following page 565.

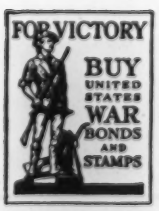
Sincerely yours,

For the Executive Director

C. L. Shartle

C. L. Shartle, Chief
Division of Occupational Analysis and Manning Tables

Separate cover



13

April 19, 1943

Miss Bertha M. Nienburg
Assistant Director
Women's Bureau
United States Department of Labor
Washington, D. C.

Dear Miss Nienburg:

We are sending you under se arate cover two copies of the second addition to the Supplement to the Dictionary of Occupational Titles which has just been released. A few months ago we sent you two copies of the first addition to the Supplement. The new material is designed to keep the Dictionary up-to-date.

This addition contains 504 job definitions and 180 new code numbers, including 23 revisions of definitions contained in Part I of the Dictionary and the Supplement. The procedures to be followed for incorporating this material are outlined on the cover pages of the additions. Due to an error in assembling the pages of the second addition, the cover page will be found following page 565.

Sincerely yours,

For the Executive Director

C. L. Shartle, Chief
Division of Occupational Analysis and Manning Tables

Separate cover
WRodgers:ab

Comment
War Manpower
Miss Davis

WAR MANPOWER COMMISSION
~~FEDERAL SECURITY AGENCY~~
~~SOCIAL SECURITY BOARD~~
UNITED STATES EMPLOYMENT SERVICE

OFFICE OF THE DIRECTOR FOR
ILLINOIS

222 West North Bank Drive
Chicago, Illinois
May 28, 1943

WOMEN'S BUREAU
MAY 31 1943
DEPARTMENT OF LABOR

Miss Louise Stitt
Womens Bureau
U. S. Department of Labor
Washington, D. C.

Dear Louise:

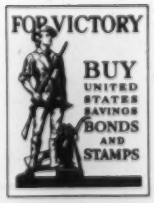
Thanks so much for sending me "What Job is Mine on the Victory Line." It is excellent. Will you see that I get one hundred copies immediately - the sooner, the better. I can use even more if I can get them. It is one of the best that has come to my desk.

It was so nice to get a glimpse of you.

Send 200
copy MVR

Sincerely,
Anne S. Davis
Anne S. Davis
Recruitment Supervisor

Thank you
6/1/43



War Manpower

U.S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

May 10, 1943

Respectfully referred to

Miss Alma Haupt, Chief,
Nurses Supply and Distribution,
War Manpower Commission,
Washington, D. C.

A letter from

Miss Ruth M. Wachs,
Secretary to Mrs. Alfred D. Lasker,
29 Beekman Place,
New York City, N. Y.

A list of names and addresses of all types of nurses, including public health nurses.

The writer has been informed of this reference.

(1990) Mary Anderson Director.

War Manpower

U.S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

May 14, 1943.

Respectfully referred to

War Manpower Commission,
Washington, D. C.

A letter from -

Mrs. Leon Fishgold,
522 S. Fremont St.,
Janesville, Wisconsin

Any information regarding compulsory registration of women in the United States, or legislation proposed, relating thereto.

The writer has been informed of this reference.

(1990) Mary Anderson Director.

War Manpower

ADVANCE RELEASE: For Sunday Papers, May 23, 1943
Jones--WMC 760
McFall--WMC 3336

PM-4390

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

Machinery for appeals by employees and employers from any War Manpower Commission action under employment stabilization plans, the 48-hour week policy and other manpower regulations was set up today by War Manpower Commission Chairman Paul V. McNutt with the promulgation of Regulation No. 5.

The new regulation prescribes who may appeal, actions from which workers may appeal, actions from which employers may appeal, notification of the right to appeal and officials or committees to whom appeals are originally taken. After decisions on original appeals, further appeals to the Regional Management-Labor War Manpower Committees and to the Chairman are possible.

Under Regulation No. 5, workers and employers, groups or organizations or workers or employers, and other persons and organizations who claim to be prejudiced by any action of the War Manpower Commission may request a hearing upon the action.

Under Regulation No. 5 a worker may appeal whenever the War Manpower Commission refuses to refer him to, or consent to his being hired for, employment in which, under an applicable W.M.C. order, regulation or other direction, he may be hired only upon referral by, or with the consent of, the War Manpower Commission; or when the Commission refuses to issue to him a statement of availability; or requires or permits his employer to release him under a W.M.C. policy, regulation or other direction; or determines that he is violating, or has violated any provision of any order, regulation or other direction of the War Manpower Commission.

Employers, under the regulation, have the right to appeal whenever the War Manpower Commission refuses to refer, or to consent to his hiring a worker or workers if, under an applicable War Manpower Commission order, regulation or other direction, he may hire such worker or workers only upon referral by, or with the consent of the War Manpower Commission; or issues a statement of availability to any of his workers; or requires him to release, or refuses to permit him to release, any workers; or determines that he is violating, or has violated any provisions of any order, regulation or other direction of the War Manpower Commission.

The regulation further provides that employers and workers shall be fully apprised of their appeal rights and upon request shall be given a written statement setting forth the action in question.

The regulation sets forth methods of appeal where there is an area Manpower Director and an Area Management-Labor Committee and in areas where as yet they have not been appointed.

In the former, appeals will be taken to the Area Labor-Management Committee. At the discretion of the Committee, hearings will be held before an Area Appeals Committee consisting of an equal number of representatives of management and labor - including representatives of agricultural management and labor when

(over)

X-15639

agricultural employment is involved - selected by the Area Manpower Director, from a panel chosen by the Area Management Labor War Manpower Committee.

In such cases, the Area Manpower Director or his representative will serve as a non-voting chairman of the Area Management-Labor War Manpower Committee at appeals hearings and of Area Appeals Committees.

In areas which are without an Area Director and an Area Management-Labor Committee, appeals will be taken to and hearings held before an Area Appeals Committee composed of an equal number of representatives of management and labor selected by the Regional Manpower Director from a panel chosen by the regional Management-Labor War Manpower Committee. A representative designated by the Regional Director will serve as a non-voting chairman of the Area Appeals Committee.

The regulations provide that original and subsequent appeals hearings shall be conducted informally and "in a manner that will best develop the facts."

Decisions on original appeals, the regulation provides, shall be made by the Area Appeals Committee or the Area-Management-Labor Committee on the basis of evidence taken at the hearing. Decision by the majority of the Committee will be final unless the appellant wishes to appeal further, or unless the Area Manpower Director or other representative of the War Manpower Commission requests that the appeal be heard by the Regional appeal body. In the event of a tie vote, the appeal will go to the regional body. Members of the Committee may file majority and minority reports.

Further provision of the regulation permits an Area Management-Labor Committee within the appeal period and prior to the filling of a further appeal to the Regional Management-Labor Committee to take jurisdiction of, hear and render a decision, which shall supersede any decision rendered by an Area Appeals Committee, on any case assigned by that Committee to an Area Appeals Committee.

Further appeals from original decision, under the regulation, may be taken to Regional Management-Labor Committees and hearings held by these committees or, before a Regional Appeals Committee composed of equal representatives of management and labor selected by the Regional Manpower Director from a panel chosen by the Regional Management-Labor Committee. These Committees may render decisions on the basis of the record, or may schedule further hearings to be held before the Committee if in the judgment of the Committee further hearings are necessary. Regional Manpower Directors, or their representatives, will serve as non-voting chairman of the Regional Management-Labor Committees in appeals hearings and of Regional Appeals Committees.

Regional Management-Labor Committees may take jurisdiction of, hear and decide, cases assigned by that Committee to a Regional Appeals Committee in like manner as Area Management-Labor Committees can take cases from Area Appeals Committees.

Final appeal, the regulation provides, may be taken to the Chairman of the War Manpower Commission, and the Chairman may take jurisdiction over any appeal at any time and render a final decision.

Under the regulation, all appeals must be taken with such periods of time (not less than three days) - following the date of the decision appealed from as the Regional Manpower Director may prescribe. The appeal period for appeals to the Chairman of the War Manpower Commission is the ten day period following the decision appealed from.

Further sections of the regulation provide that the appellant shall be given reasonable notice of the time and place of any hearing and shall be promptly notified of the decision; that he may be represented by any duly authorized person or organization; that chairmen of committees to which appeals have been taken may consolidate those raising a common question.

An appeal of an employer from a decision granting one of his workers a statement of availability in no way stays the effect of the decision so far as the worker is concerned, the regulation provides, but the officer to whom the appeal is taken may direct that subsequent cases involving other workers of an employer and raising identical issues may be suspended pending final settlement of the issue. There is a similar provision protecting employers who are satisfied with certain decisions from which workers may appeal. In all other cases the taking of an appeal stays the action appealed from, unless the Chairman of the Committee to whom the appeal is taken specifically directs otherwise.

The regulations are not applicable to Selective Service appeals or to appeals under the WMC regulations controlling requests for occupational deferment of Federal employees. Nor are the regulations applicable to appeals arising under the Commission's directive on inter-agency transfer of Federal employees. Appeals machinery and provisions already exist for such cases.

Following is the complete text of the new regulation:

[Regulation No. 5]

Pursuant to the authority vested in me as Chairman of the War Manpower Commission by Executive Orders Nos. 9139 and 9279, I hereby prescribe the following regulation governing appeals from War Manpower Commission actions:

Sec.

906.1 Who may appeal.

906.2 Actions from which workers may appeal.

906.3 Actions from which employers may appeal.

906.4 Notification of right to appeal.

906.5 To whom appeals originally taken.

906.6 Decisions on original appeal.

906.7 Hearings before and decisions by Regional Management-Labor War Manpower Committees.

906.8 Appeal to the Chairman of the War Manpower Commission.

906.9 General provisions.

(over)

AUTHORITY: secs. 906.1 - 906.9, inclusive, issued under Executive Order No. 9139, 7 F. R. 2919, and Executive Order No. 9279, 7 F. R. 10177.

906.1. Who may appeal. The worker or employer with respect to whom the War Manpower Commission takes any action described in sections 906.2 or 906.3 of this regulation may appeal from such action. Other workers or employers, groups or organizations or workers, or employers, and other persons or organizations who claim to be prejudiced by any action taken by the War Manpower Commission may request a hearing upon such action and such hearing may be afforded in the discretion of the War Manpower Commission representative to whom the request is directed.

906.2. Actions from which workers may appeal. A worker shall have the right to appeal whenever the War Manpower Commission -

(a) refuses to refer him to, or to consent to his being hired for, employment in which, under an applicable War Manpower Commission order, regulation or other direction, he may be hired only upon referral by, or with the consent of, the War Manpower Commission; or

(b) refuses to issue to him a statement of availability; or

(c) requires or permits his employer to release him under a War Manpower Commission policy, regulation or other direction; or

(d) determines that he is violating, or has violated any provision of any order, regulation, or other direction of the War Manpower Commission.

906.3. Actions from which employers may appeal. An employer shall have the right to appeal whenever the War Manpower Commission -

(a) refuses to refer to him, or to consent to his hiring, a worker or workers if, under an applicable War Manpower Commission order, regulation or other direction, he may hire such worker or workers only upon referral by, or with the consent of the War Manpower Commission; or

(b) issues a statement of availability to any of his workers; or

(c) requires him to release, or refuses to permit him to release, any workers; or

(d) requires him to extend the workweek of any of his workers;

(e) determines that he is violating, or has violated any provisions of any order, regulation, or other direction of the War Manpower Commission

906.4. Notification of right to appeal. Any employer or worker who has a right to appeal from an action of the War Manpower Commission as provided in Section 906.2 and 906.3 of this regulation, shall be fully apprised of his appeal rights and , upon request, shall be given a written statement setting forth the action in question.

906.5. To whom appeals originally taken. (a) In areas for which an Area Manpower Director and an Area Management-Labor War Manpower Committee have been appointed, appeals shall be taken to such Committee and hearings shall be afforded before such Committee, or, at the discretion of that Committee, before an Area Appeals Committee composed of an equal number of representatives of management and labor (including representatives of agricultural management and labor when agricultural employment is involved), selected by the Area Manpower Director from a panel chosen by the Area Management-Labor War Manpower Committee. The Area Manpower Director, or his designated representative, shall serve as the non-voting chairman of the Area Management-Labor War Manpower Committee in appeals hearings and of Area Appeals Committees.

(b) In areas for which an Area Manpower Director and an Area Management-Labor War Manpower Committee have not been appointed, appeals shall be taken to, and hearings shall be afforded before, an Area Appeals Committee in the locality composed of an equal number of representatives of management and labor selected by the Regional Manpower Director from a panel chosen by the Regional Management-Labor War Manpower Committee. A representative designated by the Regional Manpower Director shall serve as the non-voting chairman of the Area Appeals Committee.

(c) All hearings on original and subsequent appeals shall be conducted informally and in a manner that will best develop the facts.

906.6. Decisions on original appeal. (a) The decision on an original appeal shall be made by the Area Appeals Committee or the Area Management-Labor War Manpower Committee on the basis of evidence adduced at the hearing. The decision by a majority of the Committee shall be final unless the appellant wishes to appeal further, or unless the Area Manpower Director or other representative of the War Manpower Commission requests that the appeal be heard at the Regional level. In the event of a tie vote, the appeal shall be heard at the Regional level. Members of the Committee may file majority and minority reports.

(b) An Area Management-Labor War Manpower Committee at any time after the assignment of a case to an Area Appeals Committee and prior to the expiration of the appeal period and prior to the filing of a further appeal to the Regional Management-Labor War Manpower Committee, may take jurisdiction of, hear and render a decision, which shall supersede any decision rendered by an Area Appeals Committee, on any case assigned by that Committee to an Area Appeals Committee.

906.7. Hearings before and decisions by Regional Management-Labor War Manpower Committees. (a) Further appeal from decisions on original appeals shall be taken to the appropriate Regional Management-Labor War Manpower Committee and hearings shall be afforded before such Committee, or, at the discretion of that Committee, before a Regional Appeals Committee composed of equal representatives of management and labor selected by the Regional Manpower Director from a panel chosen by the Regional Management-Labor War Manpower Committee. Such Committees may render a decision on the basis of the record in the case, or may schedule a further hearing to be held before the Committee if in the judgment of the Committee such further hearing is necessary. The Regional Manpower Director, or his designated representative, shall serve as the non-voting chairman of the Regional Management-Labor War Manpower Committee in appeals hearings and of Regional Appeals Committees. A decision shall be rendered and further appeal permitted as provided in Section 906.6 (a) above.

(b) A regional Management-Labor War Manpower Committee may at any time after the assignment of a case to a Regional Appeals Committee and prior to the expiration of the appeal period and before the Chairman of the War Manpower Commission has taken jurisdiction over a case, hear and render a decision, which shall supersede any decision rendered by a Regional Appeals Committee, on any case assigned by that Committee to a Regional Appeals Committee.

906.8. Appeal to the Chairman of the War Manpower Commission. At the direction of the Chairman of the War Manpower Commission, he may take jurisdiction over any appeal and render a final decision on that appeal. The Chairman of the War Manpower Commission shall render a final decision on all cases appealed from a decision of a Regional Appeals Committee or of a Regional Management-Labor War Manpower Committee. The Chairman of the War Manpower Commission in rendering a decision shall consider the record in the case and recommendations submitted by the Management-Labor Policy Committee.

906.9. General provisions. (a) Appeals periods. All appeals must be taken within such periods of time (but such period shall be at least three days) following the date of the decision appealed from as the Regional Manpower Director may prescribe. The appeal period for appeals to the Chairman of the War Manpower Commission shall be the ten day period following the rendition of the decision appealed from.

(b) Notice of hearings and decisions. The appellant shall be given reasonable notice of the time and place of any hearing upon his appeal and shall be promptly apprised of the decision.

(c) Right to representation. Any action which any person or organization may take under this regulation may be taken on his behalf by his duly authorized representative.

(d) Consolidation of appeals. Whenever appropriate for the full and expeditious determination of common questions raised by two or more appeals, the Chairman of the Committee to whom such appeals are taken may consolidate them.

(e) Effect of appeal on action appealed from. Whenever the War Manpower Commission issues a statement of availability to any worker or permits or requires an employer to release a worker, the appeal of the worker or employer, respectively, shall in no way stay the action as to the worker or employer satisfied with the action, but the officer to whom the appeal is taken may direct that subsequent cases involving other workers of the employer and raising identical issues be suspended pending final settlement of such issues. In all other cases the taking of an appeal shall stay the action appealed from, unless the Chairman of the Committee to whom the appeal is taken specifically directs otherwise.

(f) Inapplicability to Selective Service appeals. Nothing in this regulation shall be construed as applicable to action taken under the Selective Service and Training Act of 1940, as amended, or Executive Order No. 9309, or to transfers between Executive departments or agencies of the Federal Government under Executive Order No. 9243.

(g) War Manpower Commission. The term "War Manpower Commission" includes any officer, employes, agent or agency designated by the War Manpower Commission.

(h) Modification of other policies. The provisions of any prior War Manpower Commission policy, regulation or other direction, to the extent that they are inconsistent with this regulation, are hereby modified to conform with the provisions of this regulation.

Paul V. McNutt

Chairman
War Manpower Commission
May 1, 1943

Please return to Robinson

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
MAY 17 1943
DEPARTMENT OF LABOR

May 15, 1943

Miss Mary V. Robinson
Chief, Information Division
U. S. Department of Labor
Women's Bureau
Washington, D.C.

Dear Miss Robinson:

Thank you very much indeed for your letter of May 13 with the many helpful suggestions for the September Campaign on Womanpower.

I think we should meet very soon and discuss the program in detail. At first glance, I would say that the things that would be most immediately beneficial would be as follows:

1. To work out some articles for Miss Anderson's signature. I will discuss this with Dorothy Ducas of the OWI Magazine Section.

2. Also, we should certainly avail ourselves of your excellent contacts with editors of periodicals of women's organizations. I believe we should prepare a "fact sheet" for these editors on the importance of women at work, and especially the importance of the necessary civilian job.

3. We would certainly welcome a special message from Miss Anderson for Labor Day. Also, if you could persuade Kathleen McLaughlin, Dorothy Bromley, Mary Hornaday, and Nell Giles to get behind this campaign, it would be greatly appreciated, I am sure.

4. I think we should do everything we can to arrange exhibits for museums and the retail trade.

5. Conferences and speeches would be invaluable, as would the use of exhibits in connection with these meetings. If possible, suggest using your field organization as well as your national organization for this purpose.



Thank you for the nice things you said about our leaflet. Unhappily, I cannot furnish you with immediate copies as there are still a few corrections to be made. A supply will be sent to you as soon as they are available.

Sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaigns
Information Service

May 13, 1943.

Mrs. Mary Brewster White, Manager,
Women's Campaigns
Information Service
War Manpower Commission
Washington, D. C.

Dear Mrs. White:

Replying to your letter of May seventh, outlining your September woman campaign plans, I can say the Women's Bureau will be glad to cooperate in all ways possible. Bess Furman had already spoken to me over the telephone concerning the general plan and the research activities (of the Magazine Section).

In regard to your inquiry as to specific ways in which our information division might cooperate I offer the following suggestions:

1. Magazines and periodicals (including labor and trade press)

Our file of pictures of women workers, particularly those of civilian occupations can be drawn on for cover suggestions and illustrations of articles. In recent weeks we have been building up our file along these lines. We can cooperate on this with the central clearing committee.

We can prepare for Miss Anderson's signature some magazine articles on various aspects of women's employment in the occupations involved, and furnish information to magazine staff or free lance writers.

We shall be glad to work as closely as you might wish with the editors of the periodicals of women's organizations such as the American Association of University Women, General Federation of Women's Clubs, National Federation of Business and Professional Women's Clubs, Young Women's Christian Association, Etc.

Also we have special contacts with staff writers of women's magazines, which we can utilize, for example, Margaret Howser,

and Natalie Kiliani, career editors of MADEMOISELLE and GLAMOUR, respectively; Hildegarde Fillmore of MCCALL'S; Katherine Fisher, of GOOD HOUSEKEEPING, etc., etc.

2. Newspapers

We will prepare a special Labor Day message along the lines of the campaign for Miss Anderson to send out to newspapers.

We can prepare news or feature stories for newspapers, and furnish information to women reporters, correspondents, and editors of women's pages. For example, Kathleen McLaughin, of New York Times and Dorothy Dunbar Bromley, of the New York Herald-Tribune; Mary Horniday, of the Christian Science Monitor; Nell Giles, of the Boston Globe are very good contacts of ours. We have a card file of key newspaper women operating in Washington, and in other parts of the country.

3. Motion pictures

We can suggest subjects for news reels or features, or brief popular
Some months ago we worked very closely with Roberta Cook, of the Motion Picture Bureau of O.W.I., and compiled much material to assist in the production of a recruitment film for women.

4. Radio

We can prepare radio talks, interviews with Miss Anderson, or popular skits, also brief popular items for use in regular women's programs.

5. Retail trade and museums

We can prepare exhibits consisting chiefly of enlargements of photographs of women in certain of the occupations involved, for display in store windows, museums, or elsewhere. For example, we worked closely with Mr. Rink and Mr. Lynch in their recent Franklin Institute exhibit.

6. Advertisers

We told Miss Evelyn Blewett, of the National Advertising Council we would be glad to cooperate with her in all ways possible.

7. Conferences and meetings

Speeches given by the Director and other members of Women's Bureau can stress women's employment in the essential civilian jobs.

Exhibits can be sent to stress such employment.

I have outlined, as you see, a number of possible procedures for us, and I would be glad to confer with you at your convenience as to what types of cooperation you prefer to have us give in the near future and later.

I want to congratulate you on your leaflet. It is very attractive and interesting. If you could send us a reasonable quantity we could help to distribute it by giving out individual copies to people coming in to the Bureau. However, the most effective way for us to assist in its distribution, if you wish, is to send you notices of meetings, etc. where we are requested to send material for distribution so that you might send quantities of your leaflet also. We could state in our letters to those sponsoring such meetings that we have requested you to send material.

Very truly yours,

Mary V. Robinson, Chief,
Information Division.

MVR
11

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

May 7, 1943

Miss Mary Robinson
Director of Information
Department of Labor
Washington, D. C.

Dear Miss Robinson:

The office of War Information is planning a salute to the woman war worker during the month of September. You will note from the attached campaign plan that the stress is on the "necessary civilian job".

I feel sure that you will want to cooperate with us on this and I would appreciate it tremendously if you would forward me any thoughts and suggestions you may have in this connection at your early convenience.

Attached you will also find a copy of our first "baby"--the folder entitled, "I Want a War Job!" Let me know if you would like copies.

Very sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaigns
Information Service

Enclosure



April 5, 1943

SEPTEMBER CAMPAIGN

THE MORE WOMEN AT WORK . . . . . THE SOONER WE'LL WIN

By and large, women have been--

slow to realize the inevitable need for them to take war jobs--

loath to let go of old habits, pleasant peace-time pursuits.

While this is not to be wondered at, it is becoming increasingly urgent to do something about it, because:

1. An army of 11,000,000 men is in the making.
2. Men going into the armed services must be replaced in industry, and in business, by women, older men, minority groups--but mostly by women.
3. It is numerically impossible to continue to wage offensive war without making use of the present UNUSED WOMANPOWER.
4. The following shortages will have to be met by women:

Teachers	50,000
Graduate Nurses	100,000 (Civilian)
Student Nurses	65,000
Transportation	100,000

5. War crops cannot be produced, and food processed, without WOMANPOWER.
6. Child Care centers must be established and manned in order to release women for war work - and, more important, to take care of the acute social problems which already exist in war production centers.
7. Most of the women working now have always worked. We must reach those women who are "waiting to be drafted"--and there are millions who, through ignorance, are waiting.

In order to be effective, we believe it is necessary to get a strong, unified message across through every channel that women are familiar with and trust.

The leadership in this promotion should be carried by

MAGAZINES - supported by:

Motion Pictures (feature and newsreel)
Newspapers
Radio

Advertisers
Retail Trade
Museums
Trade Press
Employee Publications

The logical time to conduct such a campaign is in September, because--

1. September is the "labor month" and for that reason it is logical to connect work and women.

2. It is estimated that even before September the "bite" of Selective Service will be felt and that both war and civilian industry will be clamoring for women.

It will be essential to sell all war jobs, because it is estimated that "two out of three women working by the end of 1943 will be working in necessary civilian jobs."

Actually, therefore, the factory job requires only one-third of our promotion. And unless we devote the required promotional attention to the "two-thirds," the effect of incomplete recruiting will be felt not only in the community, but in the falling off of war production through the ill health, exhaustion, low morale, senseless inconvenience of the workers themselves.

Social stigma must be removed from the paid job. Such humble jobs as the following must be glorified as patriotic services:

driving street-cars, delivery trucks, buses
running elevators
working as retail clerks, food clerks, drug clerks
working as waitresses, laundresses
packing food
typing
operating telephone switchboards

If magazines are to take the lead and keynote this program to women, we suggest that they start with the

COVER -- portraying women in war work - any war job - using an identifying slogan and insignia, and making every effort to get every possible interpretation of "war jobs for women" across. Covers may be as varied as usual, because it is seen that "womanpower" provides a multitude of thematic possibilities. In order to assure no duplication of ideas, we propose setting up a central clearing committee.

The cover alone obviously will not do the most complete job. Therefore, we suggest that the back cover carry a war-working woman too, in its current advertising. (We will approach cover advertisers to use women in their September ads.)

As important as either cover is the --

EDITORIAL CONTENT.

This should be mainly on women in war work - here and abroad. Various Government Agencies will be only too glad to suggest any number of stories which are actually a matter of record.

Important, too, in the promotion is the --

ADVERTISING CONTENT.

Through the Advertising Council we will present suggestions to advertisers for tie-in campaigns.

MOTION PICTURES: It is our plan to release a dramatic feature through the Motion Picture Bureau, which will tie in with the September Campaign.

Shorts of all types and newsreels will be suggested, including clothes-cosmetic angles, etc. as part of morale.

RADIO: The Office of War Information will plan an extensive network allocation campaign.

NEWSPAPERS: Plenty of news breaks and publicity breaks can be arranged through OWI and cooperating groups.

RETAIL TRADE: The Retail War Campaigns Committee will plan an extensive program to reach 350,000 retail outlets.

MUSEUMS: Several large museums throughout the country are eager to work with the program. Suggest a showing of covers with other exhibits that would be relative - work clothes, machines, photographs--at a large museum in each city. Plenty of publicity would result.

TRADE PRESS AND EMPLOYEE PUBLICATIONS: Complete coverage through OWI and Advertising Council.

CROSS REFERENCE SHEET

Name or Subject

Miss Charlotte E. Carr,
War Manpower Commission

File No. 387

Regarding

Miss Carr referred letter to Miss Anderson from Mr. G. H. Benkendorf, Milk Producers Asso. of Central California, regarding number of days women should be allowed to work.

Date 5/4/43

SEE

Name or Subject Milk producers' Association of Central California

File No. 248

File cross reference form under name or subject at top of the sheet and by the latest date of papers. Describe matter for identification purposes. The papers, themselves should be filed under name or subject after "SEE."

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Files
War Manpower

Robinson

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

11 West 42 Street
New York, New York

OFFICE OF THE
REGIONAL DIRECTOR

WOMEN'S BUREAU
MAY 12 1943
DEPARTMENT OF LABOR

May 11, 1943

Miss Mary Anderson
Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Because of the previous interest you manifested in the subject, I believe you will be interested in reading the enclosed report on absenteeism.

Sincerely,

Anna M. Rosenberg
Regional Director

Enclosure

FOR VICTORY
BUY
UNITED
STATES
WAR
BONDS
AND
STAMPS

W.M. files

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

May 8, 1943

Miss Nyswander
Womens' Bureau
Room 1320
U. S. Department of Labor
Washington, D.C.

Dear Miss Nyswander:

We are very glad to comply with your request for 15 copies of the mimeographed statement on "Recently Reported Occupations in Which Women Are Employed."

Sincerely yours,

Helen H. Ringe

Helen H. Ringe
Bureau of Placement

Enclosures



War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
APR 23 1943
DEPARTMENT OF LABOR

April 20, 1943

Miss Mary Anderson
Chief, Women's Bureau
U.S. Department of Labor
Washington, D.C.

Dear Miss Anderson:

NSM fax the kit to her boshcase

The contributions from the Women's Bureau are an important part of the kit of reference materials on "War-Time Employment of Women" which has just been supplied to our field staff.

I am sending you a copy and wish to express my appreciation of your generous cooperation

Sincerely yours,

A. L. Nickerson

Albert L. Nickerson
Director, Bureau of Placement

Pleas keep intact

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

To		From	Re Attached Please—
	Anderson.		Approve
✓	Nienburg.		Comment
	Larrabee.		Note
	Benham.		Note and return
	Dern.		Reply
	Erickson.		Draft of reply
	Hyde.		Signature
(1)	~~Manning.~~		Would like to discuss
	~~Mettert.~~		File
Mary	~~Pidgeon.~~ Mary		Date
	~~Robinson.~~		Note: 4/23/43
	Smith, F.		
(2)	~~Spring.~~ Very nice!		
	~~Stitt.~~		
	Files.		

OPO 16—24460

~~Sweden~~
~~Sweden~~

Return to Myrander

War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
APR 23 1943
DEPARTMENT OF LABOR

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Miss Mary Anderson
Chief, Women's Bureau
U.S. Department of Labor
Washington, D.C.

Dear Miss Anderson:

The contributions from the Women's Bureau are an important part of the kit of reference materials on "War-Time Employment of Women" which has just been supplied to our field staff.

I am sending you a copy and wish to express my appreciation of your generous cooperation.

Sincerely yours,

A. L. Nickerson

Albert L. Nickerson
Director, Bureau of Placement

Enclosure



WAR MANPOWER COMMISSION
Washington, D. C.

Paul V. McNutt
Chairman

USES Information Bulletin No. B-21
March 30, 1943

DEPARTMENT OF LABOR

SUBJECT: War Time Employment of Women
Kit of Reference Materials for Use of Field Staff

Questions concerning employment of women will continue to increase with the mounting demand for women to meet labor shortages. In order to deal with these questions intelligently, the staff of the War Manpower Commission and local employment offices need background material and information in addition to that which is available locally.

A Kit of reference materials, which is being sent you under separate cover, is designed to meet this need. The expanding file envelopes labeled "War Time Employment of Women," readily permits the addition of other pertinent reference material. We expect to send you additional publications as they become available.

The materials in the Kit should be used by regional, area and local office staff who discuss problems in the employment of women with employers, representatives of other government agencies, community groups and applicants.

State Directors will be responsible for making prompt distribution of the kits to local offices. A sufficient number is being sent to each administrative office to provide for release of one copy to each local office and of additional copies to those local offices where additional copies are required. Sufficient copies of the kits are being sent to Regional offices to provide one copy for each Regional and Area office.

The distribution of material to the staff should be accompanied by the above explanation of its purpose with any further suggestions as to its use which seem appropriate.

The materials now being issued are listed below:

War Jobs for Women. Office of War Information, Magazine Section. November 1942.

Woman Power. Furnas, J. C. Reprint from The Ladies Home Journal. November 1942.

Lifting Heavy Weights in Defense Industries. Special Bulletin No. 2, U.S. Department of Labor, Women's Bureau, 1941.

Night Work for Women and Shift Rotation in War Plants. Special Bulletin No. 6, U.S. Department of Labor, Women's Bureau, 1942.

WOMEN'S BUREAU
APR 25 1943
DEPARTMENT OF LABOR

6-6067 bu-pun-wp

Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs. Special Bulletin No. 7, U. S. Department of Labor, Women's Bureau, 1942.

Guides for War-Time Use of Women on Farms. Special Bulletin No. 8, U.S. Department of Labor, Women's Bureau, 1942.

"Equal Pay" for Women in War Industries, Bulletin No. 196, U.S. Department of Labor, Women's Bureau, 1942.

Publications of Women's Bureau Relating to Women in War Industries. Supplement to Folder 14, U.S. Department of Labor, Women's Bureau.

Recently Reported Occupations in Which Women Are Employed. War Manpower Commission, United States Employment Service, Occupational Analysis Section. February 1943.

A. L. Nickerson

Albert L. Nickerson
Director, Bureau of Placement

Index Entries:
Women
wartime employment of
reference materials kit

Files
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

April 5, 1943

Miss Suzanne A. Wunder
Women's Bureau
U.S. Department of Labor
Washington, D.C.

WOMEN'S BUREAU
APR 6 1943
DEPARTMENT OF LABOR

Dear Miss Wunder:

Thanks for sending me the copy on "What Job is Mine on the Victory Line?"

May we have an estimate on "riding your requisition" for 100,000 copies ?

...ipt of the estimate, we will let ... want to be included in your order.

DEPARTMENT OF LABOR

Sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaigns
Information Service

WMC finally did not order any, using instead what they had worked out with USES.
Mrs White at about that time transferred to OWI.

for 100,000 copies

Mack, editorial, WMC

Files
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

April 5, 1943

Miss Suzanne A. Wunder
Women's Bureau
U.S. Department of Labor
Washington, D.C.

WOMEN'S BUREAU
APR 6 1943
DEPARTMENT OF LABOR

Dear Miss Wunder:

Thanks for sending me the copy on "What Job is Mine on the Victory Line?"

May we have an estimate on "riding your requisition" for 100,000 copies ?

Immediately upon receipt of the estimate, we will let you know to what extent we want to be included in your order.

Thanks.

Sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaigns
Information Service

Telephoned
estimate, $270.00 for 100,000 copies

WMP-3384 - Miss Mack, editorial, WMC



War Manpower

April 26, 1943.

Bureau of Placement
War Manpower Commission
Washington, D. C.

A copy of a letter from

Mrs. Phyllis Smith
Shinglehouse, Pa.
R. F. D. No. 2

Two sisters seeking employment
in a national munition plant
at Eldred, Pa.

War Manpow

April 26, 1943

Placement Bureau
War Manpower Commission,
Washington, D. C.

A copy of a letter from

Miss Ruby Thomas
213 Cedar St.
La Grange, Ga.

A colored girl seeking employment
in a shipyard.

War Manpower

April 23, 1943

War Manpower Commission
Social Security Building
Washington, D. C.

ATTENTION: Mr. Flynn, Room 5449.

This is the letter about which I talked to Miss Flynn over the telephone this morning and which I stated I would send to you for reply.

Very truly yours,

Mary V. Robinson, Chief,
Information Division.

LL
Encl.

(COPY)

Kansas City, Mo.
1330 Park Ave
Apr. 1, 1943

Madam Secretary;

I am confronted by a problem, which know one can answer for me but you. Before I state my problem, I want to make this clear, that I am not involving any company, person, or persons. This situation came before me and I really don't know the answer, so I've decided to write to you, for if there is anyone to know the answer to my question it is you the Secretary of Labor. Now we'll get to gacts so we can continue with this letter. Release! Yes, that's my question what does it mean to be released from your job, and when can your employer give you one. "For instance!" you are employed in a plant, in which the work you are doing is hard on your health, and your doctor recomends you get another job to guard your health. Isn't your employer suppose to give you a release when you ask him too, or is he to wait untill you get another job, before you can be released. Here's another problem to put before you. A house wive employed in a plant for three years, then a few matters come up at nome in which she has to give up her job. Doesn't her employer have to give her a release. So that in later months if she would like to get a job some where else she can, or is there a law that he can't. I'd also like to make clear that this plant isn't 100% percent defense work. Please answer the letter as clear & quick as possible, for it is important that I Know this information.

Sincerely

(Signed) Frances Terranella

War Manpower

April 23, 1943

Miss Margaret A. Hickey, Chairman
Women's Policy Committee
War Manpower Commission
Washington, D.C.

Dear Miss Hickey,

I am sending some more names for your list.

If there is any possibility of appointing these people, we should be glad to be consulted further as we have more information than appears on this sheet. I personally know some of them.

Sincerely yours,

Mary Anderson, Director

rfn

Sent to her at Dodge Hotel
& marked Personal

San Francisco area

- Mrs. Addie B. Bishop, women's coordinator, Mare Island Navy Yard
- Miss Marcia L. Patterson, women's counselor, Marin Shipbuilding Co., Sausalito
- Miss Rowena Peters, San Francisco Ordnance District, Hotel Empire, SanFrancisco
- Miss Virginia Wood, California State CIO Council, San Francisco

Portland, Ore.

- Miss Eleanor Bradley, personnel assistant, Commercial Iron Works
- Mrs. Saidie Orr Dunbar, Woodlock Bldg.

Mercer Island, Wash. (near Seattle)

- Dr. Theresa S. McMahon (retired professor, Labor Economics)

Los Angeles

- Miss Victoria McAlmon) Wiggins Trade School
- Miss Stelle Churchill)

Salt Lake City

- Mrs. Burton Musser
- Mrs. James Wolfe

Tulsa, Okla.

- Mrs. Lucille Mulhall, Y.W.C.A. secretary

Kansas City, Mo.

- Miss Laura Haines, industrial secretary, Y.W.C.A.
- Mrs. Sam White (wife of Manager, International Ladies Garment Workers)

Wichita, Kan.

- Mrs. John Michner (community leader)

Chicago

- Miss Smith, United Electrical Workers
- Miss Annette Dieckman, Y.W.C.A.

Milwaukee, Wis.

- Miss Katherine Hartman, CIO

Mobile, Ala.

- Miss Mary Guarisco, industrial secretary, Y.W.C.A.
- Mrs. Renee Kimmich, Army Air Depot, Rear Brookley Field

Brunswick, Ga.

- Mrs. Mary Powell, women's supervisor, Jones Shipbuilding Co.

Robinson

War Manpower

SUMMARY OF VE-ND ENROLLMENT AS OF APRIL 1943

The changing character of the War Production Training Program during the present fiscal year is indicated by the relative stability of enrollments in supplementary courses compared to the decreasing trend noted in preemployment courses. Contributing factors have been the closing down of WPA projects; the increasing reluctance of persons to take preemployment training when they can be paid for their training time; the transfer of trainees from preemployment courses to supplementary as private industry places trainees on its payrolls; and the fact that industrial concerns have somewhat tightened their hiring policy by not giving employment to men who are classified 1-A under Selective Service.

PREEMPLOYMENT COURSES

A total of 31,209 females were attending preemployment courses on April 30, 1943, and constituted 30.0 percent of the total number of trainees. This number represented a decrease of 20.8 percent compared with the March figure. Over one-third of the active women trainees (10,440) were in training in machine shop courses, and represented 29.0 percent of all machine shop trainees. There were 6,880 females in aviation services courses, which was 22.0 percent of all the females in training and 36.9 percent of all the aviation services trainees.

The number of women in training and its proportion to the total number in training in the State for some of the larger States were: California, 1,588, or 25.0 percent; Michigan, 1,328, or 43.1 percent; New York, 4,421, or 23.7 percent; Pennsylvania, 4,318, or 32.2 percent; and Ohio, 1,598, or 37.7 percent.

New Registrations

New female registrants during the month of April amounted to 18,157 and constituted 37.0 percent of all new trainees. A decrease of 28.7 percent was reported in the number of women registering for preemployment courses during April as compared with March.

The four States having the greatest numbers of new women registrants, with the number and proportion to all new registrants in the State, were: California, 1,168 new female trainees, or 31.3 percent of the total new trainees in that State; Michigan, 1,099, or 57.1 percent; New York, 1,669, or 27.1 percent; and Pennsylvania, 1,758, or 34.0 percent.

The three most popular courses among new female registrants in preemployment courses were: Aviation services courses, with 4,466 new female enrollees, or 24.6 percent of the total female enrollees; machine shop courses, with 5,349, or 29.5 percent; and shipbuilding courses, with 3,691, or 20.3 percent.

SUPPLEMENTARY COURSES

While the number of females in training in supplementary courses at the end of the month decreased 4.7 percent from 41,926 in March to 39,967 in April, its proportion of the total rose from 25.4 percent to 26.1 percent in the same period. Of all the women in training, 20,760, or 51.9 percent, were in aviation services courses. Three courses included 47.7 percent of the women in this type of training and were: Aircraft sheet metal - mfg., 14.9 percent; aircraft assembly - mfg., 15.5 percent; and aircraft riveting - mfg., 17.3 percent. Female trainees in all aviation services courses accounted for 46.5 percent of all persons in this type of training. Machine shop courses had 4,539 women trainees, or 11.4 percent of all the female trainees; shipbuilding, 5,206 or 13.0 percent; and courses not otherwise classified (other), 7,074, or 17.7 percent.

The proportion of women included in the State totals in some of the larger States was: California, 23.2 percent; New York, 21.5 percent; Ohio, 43.6 percent; and Pennsylvania, 32.7 percent. These four States accounted for 40.4 percent of all women in active training status at the end of April.

New Registrations

New enrollments of female trainees showed decreases during the month of April as compared with the March figures. The number of new female trainees decreased 6.1 percent.

Gen. File

War Manpower

April 14, 1943

U. S. Employment Service
War Manpower Commission
Federal Security Agency
1025 P. Street
Sacramento, Calif.

Gentlemen:

Will you discontinue sending to this Bureau the Weekly Agricultural Labor Market Report. We appreciate your sending this report to us and if at some future time we find we need this report we will write to you for it.

Sincerely yours,

Bertha M. Nienburg
Assistant Director

Your number Es 227A

BMN:LW

War Manpower

April 15, 1943.

Miss Alma Haupt, Chief
Nurses and ~~Supply~~ Distribution
Bureau of Placement
War Manpower Commission
601 Penna. Ave.
Wash. D.C.

Two letters asking about information in the field of nursing from
Marian Davis and
Winona Davis, both at
121 Tenth St. South
Phoenix, Arixona

Copies of letters attached

Files
War Manpower

April 15, 1943

Miss Margaret A. Hickey, Chairman
Women's Advisory Committee
War Manpower Commission, 5454 Social Security Bldg.
Washington, D. C.

Dear Miss Hickey:

This is the list that I promised to send of women in supervisory and personnel positions. I have checked the ones that we know, and know are very good. There may be plenty of others that are just as good, but we do not have the information on them.

I hope to submit other names from the West and Middle West soon.

Sincerely yours,

Mary Anderson, Director

MA:IS

~~Miss Hinchburg~~

Files War Manpower

WAR MANPOWER COMMISSION
1100 South Flower Street
Los Angeles, California
April 6, 1943

WOMEN'S BUREAU
APR 9 1943
DEPARTMENT OF LABOR

Mary Anderson, Director
U. S. Department of Labor
Women's Bureau
Washington, D. C.

Dear Miss Anderson:

Thank you for the copies of Guides for Wartime Use of Women on Farms and Suggested Outline of Organization Setup for Women Farm Workers which you sent us on March 26, 1943.

We are preparing job information to assist United States Employment Service interviewers in recruiting agricultural workers in California.

As you are aware, the manpower shortage is affecting the agricultural communities to a greater extent than ever before.

We hope that the program of preparing agricultural job descriptions will help to alleviate to some extent this shortage.

We will appriciate being placed on your mailing list, or receiving any other information you may be able to give us concerning books, pamphlets, or other publications to which we may refer, or informed individuals whom we may contact.

Vcard for 350

Sincerely yours,

H. R. Harnish
Area Director, WMC

By R C Elliott
R. C. Elliott, Area Chief
Division of Manpower Utilization



War Manpower

April 6, 1943

To: Miss Charlotte Carr
Assistant to the Deputy Chairman
War Manpower Commission
Room 5462-C Social Security Bldg.
Washington, D. C.

From: Mary Anderson, Director
Women's Bureau

I am referring to you the enclosed complaint concerning the Ohio State Employment Service and refusal of a certificate of availability to the complainant, who states she is still out of defense work.

MA:IS

COPY

305 East 150th St.
Cleveland, Ohio
March 31, 1943

Bureau of Female Labor
Washington, D. C.

Gentlemen:

As an American-born citizen feel that I have a grievance against the Ohio State Employment Service, 1236-42 West Third St., Cleveland, Ohio.

These are the facts as I can give them to you.

A co-worker and I of the Thompson Aircraft Products Co. applied for an availability March 6, 1943 and she received hers within 2½ weeks and is now employed in a defense plant. I am still out of defense work. However, the circumstances of our leaving were identical and I have been refused an availability by the board as of March 31, 1943, stating my reasons were insufficient.

Furthermore their office hours are posted from 8 a.m. to 5 p.m. On March 31, 1943 I called at the office at 4:30 plm. and I was refused an interview.

Putting this case before you I would appreciate your attention on this matter at the earliest date.

Sincerely yours,

(Signed) Margaret M. Ertle

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(Signed) Margaret M. Ertle

Files

(Women's Adv. Com. to the War Manpower Com.)

Hooks says part of this appeared in an OWI release.

DEPARTMENT OF LABOR

Miss Larrabee -

Will you have this copied and send copies to:

Hooks
Robinson
Nienburg
Stitt
Spring
Hyde
Manning

marked CONFIDENTIAL, for their information.

Return original to me.

IHS

No. 203 GPO 16—18507

by the Women's Advisory Committee, War Manpower Commission
Recommendations sent to Dr. Reeves of the National Resources Planning Board for incorporation in their report on Post-War Planning.

Adv. Comm. (This was sent to Miss Anderson by Miss Christman who attended the meeting) Dec 2

COPY COPY

WOMEN'S BUREAU
DEC 1943
DEPARTMENT OF LABOR

In this brief time given to formulate our suggestions we feel we can touch only on the most general terms on certain areas of interest which deeply concerns us as women. Since we have not seen the report, we shall assume that many of these considerations have been covered. But thinking as women and believing that the problems which revolve about the family unit and the community life in which the individual moves, are worker's particular concern, we as a committee of women wish to urge that major attention be given to a wide social program both in the transition period and in long-time plans.

After the war great resources of manpower will be available and vast sums of money will be spent to transfer from a war to a peacetime economy. We believe that these resources should be utilized in a program which includes:

1. Expansion of health and nursing facilities.
2. Maternal benefits.
3. Better nutritional education and opportunity (free milk, hot lunches, etc. for school children)
4. Extension of education so that it be truly open to all.
5. Adult educational programs for men and women, demobilized from industry and the services, until they can be re-absorbed into employment.
6. Stimulation of education for young people where education was interrupted by war emergency.
7. Combination work and education programs like the CCC, possibly for girls as well as boys.

Any report which deals with plans for demobilization and adjustment after the war must be based on two assumptions:

1. That the system we have fought to save must be developed through the voice of all persons, men and women, in the determination of social change and social direction and
2. That in order to achieve the hopes of a democratic society,

we must be able to train and utilize as fully as possible the skills, talents, and resources of all men and women.

The "problems of women" need not be considered apart from the problems of men, except:

1. In those cases where women's contribution are of especial importance and

2. In those cases where there is danger that women will not be given full opportunity for participation in social, intellectual and economic life.

It must be recognized that women are peculiarly fitted to assist in developing policies and programs affecting women, children, the family, and social institutions.

It is in the economic world that there is danger that women may not be given equal opportunities.

Many women will return to their homes; rough estimate of the number who will voluntarily choose to return may be made; but the Government and industry must not assume that all women can be treated as the reserve group during war only. Nor should those who wish to stay in the labor market be accused of taking men's jobs. The right of the individual woman to work must be recognized and provided for, just as the right of the individual man to work.

War Manpower

FEDERAL SECURITY AGENCY

SOCIAL SECURITY BOARD

WASHINGTON, D. C.

ARTHUR J. ALTMEYER, CHAIRMAN
ELLEN S. WOODWARD
GEORGE E. BIGGE

March 23, 1943

Personal

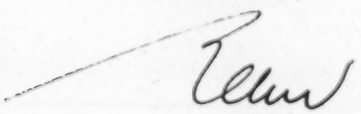
Dear Mary:

I was so glad to talk to you over the phone on Sunday and I agree with you thoroughly that we should do everything possible now to see that a woman is appointed to the Labor Management Committee. Your suggestion that Miss Hickey should be the woman appointed is all right with me and I shall do all I can to help on this.

Am sorry that you are going to be out of town for the next few days but I shall look forward to seeing you when you return from Oklahoma.

Affectionate regards.

Sincerely,





March 22, 1943

Miss Louise Franklin Bache, Exec. Sec'y
National Federation of Business and
Professional Women's Clubs Inc.
1819 Broadway
New York, N. Y.

Dear Miss Bache:

Miss Anderson asked me to send you the enclosed copy of a clipping from the Washington Star of March 21, which came to her attention yesterday just as she was leaving for Oklahoma City. She is concerned, of course, that there is no woman on the new committee.

Miss Anderson will return to Washington on Saturday morning, March 27.

Sincerely yours,

Secretary to Miss Anderson

IS

MCNUTT SETS UP NEW COMMITTEE ON MANPOWER

Washington Star
Mar. 21, 1943

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Attending the three-hour executive session were President Philip Murray of the CIO, William Green of the AFL, Edward A. O'Neal of the American Farm Bureau Federation, James O. Patten of the National Farmers' Union, Eric Johnston of the United States Chamber of Commerce, Frederick Crawford of the National Association of Manufacturers and Master Albert A. Goss of the National Grange. They explained that the action had been taken at the request of the full committee.

All Decisions Unanimous

Acting as spokesman, Mr. Johnston said the new committee would be made up of the seven leaders present and R. Conrad Cooper, assistant vice president of the Wheeling (W.Va.) Steel Corp., a member of the original committee. A representative of the Railroad Brotherhoods is yet to be selected, Mr. Johnston added. Messrs. Goss, Green and Murray were not members of the old committee.

The Chamber of Commerce leader said it had been agreed that each principal ordinarily will be represented by alternates, who will attend the conferences. He said all decisions of such meetings will be unanimous. If disagreement arises, the alternates will take the question back to their principals. If agreement is not reached, majority and minority reports will be filed. Reports and recommendations will be made to Mr. McNutt.

Retiring committee members said their group requested reorganization to permit management to have a united voice in advising Mr. McNutt. The original management panel members were able to speak only for the industry or companies they represented.

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n TEN CENTS Elsewhere 12 CENTS

Star 3/21/43

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Backers and Foes Set For Fight This Week On Skip-Year Tax Plan

House GOP Supporting Carlson Bill Against Committee Measure

By GOULD LINCOLN.

The stage has been set in the House this week for a showdown on the question of putting income taxpayers on a current basis.

Proponents of the Ruml plan, mostly Republicans, plan a vigorous battle for enactment of the Carlson bill, which is a modified version of the Ruml plan to put America's 44,000,000 income taxpayers on a pay-as-you-go basis by omitting 1942 levies. The Democratic high command is equally bent on passage of the House Ways and Means Committee's bill which would allow income taxpayers to become current by paying 1942 and 1943 taxes this year. Both measures provide a withholding tax of 20 per cent beginning July 1.

The committee's bill, which provides no new levies or rate changes but merely deals with the method of collecting income taxes, is due to come before the House Thursday. A final vote is not expected before the following Tuesday or Wednesday.

Both Sides Confident.

Both sides expressed confidence yesterday. Republicans are planning to offer the bill, introduced by Representative Carlson, Republican, of Kansas, as a substitute for the committee measure. Voting with them, it is said, will be a substantial number of Democrats. Administration leaders in the House, however, are doing their utmost to hold Democratic lines against the Carlson substitute.

Republican leaders voiced the opinion yesterday that when the vote is taken not more than 20, and probably not more than a dozen Republicans will vote against the Carlson bill. They did not estimate the size of the Democratic vote for the Carlson bill, but insisted it would be material and from many States.

The committee's bill is to be brought before the House without the customary "gag" rule which has accompanied revenue measures in recent years. Opportunity for the submission of amendments will be given. If it becomes evident the Carlson bill advocates will prevail, the administration leaders may shift to a compromise measure proposed by Representative Robertson, Democrat, of Virginia.

The majority report of the Ways and Means Committee, supported by all the Democratic members of the committee and one Republican, Representative Gearhart of California, was made public yesterday. A minority report signed by all other Republican members of the committee will be submitted tomorrow by Representative Knutson of Min-

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Two Plans Explained.

The majority report vigorously assailed the Ruml plan for "forgiving" 1942 income taxes. The Ruml plan calls for the payment of income taxes on 1943 income, while the committee bill makes mandatory the payment on 1942 income, authorizes payment of 1943 taxes if the taxpayer can "double up" and pay two years taxes during the current year and provides a discount plan for those so doing.

In other words, the committee majority insisted that it is of more importance to collect the 1942 tax, estimated to total $10,000,000,000, than to place the country on a pay-as-you-go plan so far as income taxes are concerned. In its report it said:

"While the objective of providing for taxpayers to become current in the payment of their Federal income taxes is desirable, yet we do not believe that the country at this critical time can afford to forgive $10,000,000,000 of tax liability already due and owing by the taxpayers to accomplish this purpose, especially when it is well known that even with complete forgiveness of this $10,000,000,000 complete currency cannot be obtained."

Withholding Idea Upheld.

At the same time, the committee report recognized the need of taking money at the source to make

Questions, Ans

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UNITED ELECTRICAL, RADIO & MACHINE WORKERS OF AMERICA
DISTRICT COUNCIL NUMBER FOUR
17-19 WILLIAM STREET, ROOM 203
NEWARK, N. J.

TELEPHONE MARKET 2-4828

JAMES McLEISH
PRESIDENT

CHARLES FAY
VICE PRESIDENT

RUTH YOUNG
EXECUTIVE SECRETARY

EDWARD J. STEWART
TREASURER

JAMES LUSTIG
DISTRICT ORGANIZER

WOMEN'S BUREAU
MAR 24 1943
DEPARTMENT OF LABOR

March 22, 1943

Miss Mary Anderson, Director
Women's Bureau
Department of Labor
Washington, D.C.

Dear Miss Anderson:

I have received your letter of March 22nd. requesting that I do what I can to bring about the appointment of a woman alternate to Mr. Murray on the Management-Labor Agriculture Advisory Committee of the War Manpower Commission.

At the earliest opportunity I will take this matter up with our international officers and keep you informed of any possible developments.

Sincerely yours,
Ruth Young
Ruth Young
Executive Secretary

RY:r
uopwa 7

March 22, 1943

CONFIDENTIAL

Miss Ruth Young
United Electrical, Radio and
Machine Workers of America
17-19 William Street, Room 203
Newark, N. J.

Dear Miss Young:

Miss Anderson asked me to send you the enclosed copy of a clipping from the Washington Star of March 21, which came to her attention yesterday just as she was leaving for Oklahoma City. She is concerned that there is no woman on the new committee and wondered if you might press for the appointment of a woman alternate to Mr. Murray.

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DEPARTMENT OF LABOR

Re this clipping -
Miss A telephoned
Mrs Woodward Soc. Sec. Bd

Wrote
Ruth Young CIO
L. F. Backe B+P
Letter in files (gen'l)

No. 203 GPO 16—18507

MCNUTT SETS UP NEW COMMITTEE ON MANPOWER

Washington Star
Mar. 21, 1943

Advisors Represent Labor, Management and Agriculture

Chairman Paul V. McNutt of the War Manpower Commission yesterday appointed a new Management-Labor-Agriculture Advisory Committee of nine members, succeeding a 17-member group.

The old Management-Labor Policy Committee recommended the appointment of a new and smaller committee. It said the old committee had been helpful in advising with the Manpower Commission during the last 10 months, but that the "Maximum force of full and complete co-operative effort of Government, labor, agriculture and industrial management has not yet been brought to bear on manpower problems."

Attending the three-hour executive session were President Philip Murray of the CIO, William Green of the AFL, Edward A. O'Neal of the American Farm Bureau Federation, James O. Patten of the National Farmers' Union, Eric Johnston of the United States Chamber of Commerce, Frederick Crawford of the National Association of Manufacturers and Master Albert A. Goss of the National Grange. They explained that the action had been taken at the request of the full committee.

All Decisions Unanimous

Acting as spokesman, Mr. Johnston said the new committee would be made up of the seven leaders present and R. Conrad Cooper, assistant vice president of the Wheeling (W.Va.) Steel Corp., a member of the original committee. A representative of the Railroad Brotherhoods is yet to be selected, Mr. Johnston added. Messrs. Goss, Green and Murray were not members of the old committee.

The Chamber of Commerce leader said it had been agreed that each principal ordinarily will be represented by alternates, who will attend the conferences. He said all decisions of such meetings will be unanimous. If disagreement arises, the alternates will take the question back to their principals. If agreement is not reached, majority and minority reports will be filed. Reports and recommendations will be made to Mr. McNutt.

Retiring committee members said their group requested reorganization to permit management to have a united voice in advising Mr. McNutt. The original management panel members were able to speak only for the industry or companies they represented.

Flemming Headed First Group

The retiring committee, which was organized on May 25, 1942, with Arthur S. Flemming, member of the Civil Service Commission, as presiding officer, shaped many of the manpower Commission's policies.

Retiring committee members include E. A. Enochs, chief of personnel, Pennsylvania Railroad; R. E. Gillmor, Sperry Gyroscope Co.; R. Randall Irwin, industrial relations director, Lockheed Aircraft Corp.; C. J. Whipple, president, Hibbard Spencer Bartlett & Co.; Kenneth Gardner, industrial relations counsel, New York Shipbuilding Corp.; Frank P. Fenton, director of organization, AFL; John P. Frey, president of the Metal Trades Department; AFL; George Masterton, United Association of Journeymen Plumbers and Steamfitters, AFL; Clinton Golden, United Steel Workers, CIO; John Green, Industrial Union of Marine and Shipbuilding Workers of America, CIO, Walter P. Reuther, United Automobile Workers, CIO

Comment
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

February 23, 1943

WOMEN'S BUREAU
FEB 24 1943
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
Department of Labor
Washington, D.C.

Dear Miss Anderson:

Thank you for your note of February 16 in respect to Mrs. Mettert helping us out on our Work Clothes study. Miss Macy tells me that she has had some most interesting meetings with Mrs. Mettert and is very grateful indeed for the cooperation which your office has given her.

I do not know whether any arrangements have been made for future consultations, but I am happy to note that we may have two weeks of Mrs. Mettert's time on this particular work.

Thanking you again for your kind help.

Sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaigns
Information Service



RESTRICTED

REPORT AND RECOMMENDATIONS ON THE DEVELOPMENT OF SERVICES FOR CHILDREN OF WORKING MOTHERS

January 25, 1943

DECLASSIFIED
E.O. 11652, Sec. 3(E) and 5(D) or (E)
Authority 750127
By DR/SH NARS, Date 2/28/75

Summary

1. On December 30, the Office of Defense Health and Welfare Services submitted to the War Manpower Commission for its consideration a proposal for the reorganization of the program to develop services for children of working mothers incorporating (a) an amendment of the War Manpower Commission Policy on Employment in Industry of Women with Young Children, (b) the limitation of Lanham Act funds to capital expenditures, and (c) the recommendation that funds be made available to the Office of Defense Health and Welfare Services in order to continue the administrative services which had been initiated under the $400,000 appropriation and to provide funds for operation of this program.

2. The War Manpower Commission acted on the recommendation regarding the amendment to the policy statement to include under IV (a) "Such women be employed at such hours, on such shifts or on such part-time schedules as will cause the least disruption in their family life;". The recommendations regarding the proposed program were referred to the staff for review.

3. The program proposed by the Office of Defense Health and Welfare Services incorporates (a) centralization of responsibility, (b) use of established Federal, State and local channels, and (c) possibility of direct Federal action in developing programs in specific areas where the States or localities have not taken the initiative. This proposal meets with the approval of both the Office of Education and the U. S. Children's Bureau and has the advantages of fully utilizing State and local agencies, of delegating responsibility among the various Federal agencies concerned in such a manner that functions will not be duplicated, and of permitting the War Manpower Commission to assure itself directly that day-care programs are developed in the areas and to the extent required by the local labor supply situation. The major points of the plan are outlined below:

a. Responsibility for administration of the entire program would be centralized in the Office of Defense Health and Welfare Services and any funds appropriated would be assigned to this agency.

b. The Office of Education and the Children's Bureau would be used by the Office of Defense Health and Welfare Services for technical assistance in developing programs, evaluating State and local plans, and supervising standards.

RESTRICTED

c. The War Manpower Commission will take responsibility for notifying the Office of Defense Health and Welfare Services of the need for extensive employment of women in specific localities.

d. The Office of Defense Health and Welfare Services will take responsibility for approving State plans and for providing Federal funds to supplement State and local resources for the operation of services.

e. State operating plans will reserve the right of Federal agencies to assume direct responsibility for supervision and reorganization of local operations not conducted in accordance with approved standards.

f. The Office of Defense Health and Welfare Services will assume responsibility for requesting State plans in those instances in which the State agencies do not take the initiative; and, in cases where State or local agencies normally responsible for provision of such services are unwilling or unable to develop necessary programs with Federal aid, the Office of Defense Health and Welfare Services will take responsibility for initiating programs in localities needing these services.

4. Since the proposal of the Office of Defense Health and Welfare Services is predicated on the limitation of Lanham Act funds to capital expenditures, a re-interpretation of this Act will have to be made before the proposal can be approved. This matter is at the present time under consideration in the Bureau of the Budget.

a. The Lanham Act has recently been interpreted by the Federal Works Administrator (i) to permit expenditures for all types of children's services instead of limiting expenditures to public works and (ii) as available on the basis of a 100% Federal contribution, relaxing the restriction in the Lanham Act limiting disbursal of funds to those communities which can not provide funds without an excessive increase of the tax burden.

b. In spite of the removal of these restrictions, several factors still limit the effectiveness of a day-care program developed through Lanham

Act funds, including (i) the lack of centralization of responsibility, (ii) the fact that the new interpretation causes the Federal Works Agency to duplicate functions of other existing Federal agencies, and (iii) the specific prohibition in the Act against any Federal supervision of program or control over standards.

Recommendations

At the present time the Bureau of the Budget has under consideration the proposal made by the Office of Defense Health and Welfare Services and a request made by the Federal Works Agency for a deficiency appropriation in order to continue the program of war services under the Lanham Act. It is therefore recommended that the War Manpower Commission:

1. Endorse in principle the type of program proposed by the Office of Defense Health and Welfare Services.

2. Make appropriate recommendations to the Bureau of the Budget that this proposal be given favorable consideration and that Lanham Act funds for services of children of working mothers be limited to capital expenditures, including purchase or construction of buildings, and repairs, alterations and equipment, costing in excess of $1,000 for any project.

3. Make further rec[illegible]lations to the Bureau of the Budget to allow the Office of [illegible]e Health and Welfare Services a sufficient appropriation from the President's emergency fund, to inaugurate the program.

January 29, 1943

STATUS OF NURSERY SCHOOL LANHAM ACT APPLICATIONS

State	Project No.	City	Approved by President	Date
Connecticut	6-N-11	New Haven	"	8/31/42
Connecticut	6-N-12	Farmington	"	11/5/42
Connecticut	6-N-14	Bristol	"	10/26/42
Connecticut	6-N-9	Middletown	"	10/29/42
Connecticut	6-N-17	New Britain	"	1/8/43
California	4-N-107	Vallejo	"	11/5/42
New York	30-N-15	Lockport	"	11/20/42
Texas	41-N-97	Orange	"	11/12/42
North Carolina	31-N-12	Wilmington	"	11/26/42
Oregon	35-N-21	Medford	"	1/5/43
Utah	42-N-8	Salt Lake City	"	1/5/43

There are several applications pending the President's approval.

January 14, 1943

To: Mr. Paul V. McNutt,
Chairman

From: Women's Advisory Committee

Attached is the recommendation of the Women's Advisory Committee, concerning the appointment of a suitable woman to a staff executive position in the War Manpower Commission.

Attachment

The Woman's Advisory Committee is firmly of the opinion that the utilization of womanpower will be greatly enhanced by the appointment of a suitable woman to a staff executive position in the Manpower Commission.

They recognize the fact that women are people and are not advocating appointment of a woman to a position merely because she is a woman. They would oppose a mediocre woman compared to a well-equipped man for a position. They KNOW, however that

a. There are competent women available for appointment

b. There are great problems involved in the induction of great numbers of women from the housewife group, women who have never worked or have not worked for years, etc., especially into many industries where women have never been employed

c. There are also attendant community problems arising in connection with this induction, such as child care, health and welfare problems

And it is their belief that it is not sufficient to have women in a line executive capacity in the various bureaus. Action on many of above questions should be carried out with the advice and counsel of women or a woman at a staff executive level.

It is also believed that such an appointment would have an excellent effect on improving the public relations problem now existing between Government agencies and women's organizations throughout the country, and would increase the availability of their cooperation in the recruitment, enrollment, induction and maintenance of this woman's program, which is greatly needed.

Therefore, the Women's Advisory Committee adopts the following motion:

THAT in the new organization of the Manpower Commission, a suitable woman be appointed to a staff executive position preferably as an Assistant Executive Director or as Assistant to the Executive Director.

January 15, 1943

RECOMMENDATION FROM THE WOMEN'S ADVISORY COMMITTEE TO THE CHAIRMAN OF THE WAR MANPOWER COMMISSION ON APPOINTMENT OF WOMEN TO REGIONAL AND AREA WAR MANPOWER COMMITTEES

The Women's Advisory Committee of the War Manpower Commission has given earnest consideration to the need for women representation on Manpower committees at the regional and local levels.

The labor requirements of war and essential civilian industries in the 51 areas in which there exists an acute labor shortage now and the 95 areas in which at present there is only a balance of labor supply and demand will result in far-reaching repercussions on women locally as pressures are exerted to induce women to accept employment in industrial and agricultural areas. There will be relatively few manpower problems which will not in one way or another be identified with the induction of women into a larger sphere of activity. In fact, by the end of 1943 women will represent practically all the new entrants into the labor market.

The Women's Advisory Committee urges consideration of the appointment of capable women to membership on Regional and Area Manpower Committees. These women should be carefully selected for their experience and knowledge in the fields of management and labor and should understand basic employer and employee relations, as well as the difficulties entailed in recruiting women not normally a part of the labor market.

There have been innumerable requests from employers for advice and assistance in connection with the employment of women and the kind of personnel practices and policies which should be developed. The War

Manpower Commission at the regional and local levels should be in a position to handle these matters, which are a part of the solution to efficient use of labor reserves in stringency areas.

While estimates of the number of women to be employed in these congested areas vary, in the aircraft industry it is expected that employment will go up as high as 70 to 80 per cent. This, of course, applied to plants in Detroit, Baltimore, Buffalo, San Diego, Los Angeles and Seattle. There will have to be much more attention given to ways and means of getting women into less essential work, such as hotel services, waitresses, laundries, retail stores, etc. There will have to be part-time employment programs worked out in these congested areas. There are the related matters, such as expediting of child care programs, adjustments in shopping facilities, "equal pay for equal work", etc., which require greater emphasis.

The Women's Advisory Committee therefore respectfully requests that immediate consideration be given to the appointment of capable women to membership on the Regional and Area Manpower Committees.

January 28, 1943

Cities where employment stabilization plans are in effect.

1. Alabama
   Mobile

2. Illinois
   Waukeegan

3. Iowa
   Des Moines

4. Kentucky
   Louisville

5. Maryland
   Baltimore
   Cumberland

6. Michigan
   Detroit
   Grand Rapids
   Port Huron

7. Minnesota
   Twin Cities

8. New Jersey
   Newark

9. New York
   Buffalo
   Nyack
   Poughkeepsie

10. Ohio
    Akron
    Cleveland
    Warren-Niles
    Youngstown

11. Southern California

ADVANCE RELEASE

ADVANCE RELEASE:: For MONDAY MORNING Papers, January 25, 1943
Tharin-Agric. 4026
Greenblatt-WMC 3415

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION
DEPARTMENT OF AGRICULTURE

OWI-1149

Unified responsibility for supplying labor for war production on farms was given to Secretary of Agriculture Claude R. Wickard today under a directive issued by Paul V. McNutt, Chairman of the War Manpower Commission.

The directive consolidates functions previously divided between the United States Employment Service and Department of Agriculture. Operating responsibility for recruiting and placing farm labor, the determination of needs and of areas of supply, the transportation of farm workers to shortage areas, and the determination of war-essential crops are brought together in the Department of Agriculture. Under a previous directive from Economics Stabilization Director James F. Byrnes, the Department also has responsibility for dealing with farm wages.

The War Manpower Commission continues control of over-all manpower policies and standards, including those affecting agriculture, and will continue to determine Selective Service standards applying to agriculture. It will be responsible, also, for "continuous review and appraisal of the agricultural labor program."

Manpower Chairman McNutt's action in placing upon the Department of Agriculture responsibility for handling farm labor needs was taken under the authority granted in the President's Executive Order of December 5. The order authorized the Chairman to "avail himself of the services and facilities of such Executive departments and agencies as he determines may be of assistance in carrying out the provisions of this Order." The order also provided that departments and agencies were to utilize their "facilities, services and personnel and take such action" as the Chairman of the War Manpower Commission determines to be necessary to promote compliance with the provisions of the Executive Order.

The Department of Agriculture's responsibilities relate to all labor concerned with or incident to regular farming operations but do not include labor for manufacturing or commercial operations, such as processing, packing, canning, transporting, and marketing farm products.

The Department will handle all operating functions for the importation of farm workers from outside the country, subject to policies of the War Manpower Commission and will mobilize and direct the use of local supplies of labor for agriculture including women and young people.

Operating responsibility for the farm labor program will be centralized in the Agricultural Labor Branch of the Department's Food Production Administration, Secretary Wickard announced. Major John O. Walker is in charge of this division; in this capacity he will also serve on the staff of the Bureau of Placement of the War Manpower Commission.

Secretary Wickard said details on the machinery to be used in carrying out the new farm labor responsibilities would be announced shortly.

(over)

X-9173

WAR MANPOWER COMMISSION DIRECTIVE NO. XVII

Farm Labor Mobilization Responsibilities in
Department of Agriculture

By virtue of the authority vested in me by Executive Orders No.8139 and 9279, and having found, after consultation with the members of the War Manpower Commission that the measures hereinafter set forth will promote a more effective mobilization and utilization of the farm labor resources in the prosecution of the war through a more complete use of the facilities and personnel of the Department of Agriculture, it is hereby directed:

I. The Secretary of Agriculture, through such persons and employees (including uncompensated personnel) of the Department of Agriculture as he may designate and subject to policies and standards prescribed by the Chairman of the War Manpower Commission, and to the continuous review and appraisal of the War Manpower Commission, shall have full operating responsibility for the recruitment, placement, transfer, and utilization of agricultural workers, to the end that the labor requirements of agricultural production may be met.

II. In carrying out responsibilities in connection with the mobilization of farm labor, the Department of Agriculture will recruit, place, and transfer workers already engaged in agriculture, and youth, women and other workers not already engaged in agriculture, in order that agricultural production schedules may be met.

III. The Department of Agriculture in its recruitment of workers will cooperate closely with the United States Employment Service, in order that the total labor requirements for agriculture and other production will be served as efficiently as possible from a common labor pool. In those instances where the number of workers in agriculture and rural communities is inadequate to meet the labor requirements for agricultural production, the Department of Agriculture may place orders for additional workers with the United States Employment Service. In those instances where the facilities of the United States Employment Service are used for the recruitment of farm workers, appropriate certifications as to the labor supply and demand will be made by the Department of Agriculture. The importation of foreign workers for use in agriculture will be initiated only in accord with the policies of the War Manpower Commission and only after all local resources are exhausted.

IV. The Secretary of Agriculture shall make such reports concerning agricultural labor requirements, the supply of workers available for agricultural work, and the Department's recruitment, placement, transfer and utilization operations under this directive, as the Chairman of the War Manpower Commission may from time to time require, for an appraisal of the agricultural labor mobilization program and for the purpose of coordinating this program with other parts of the manpower mobilization program.

V. As used in this directive, the term "agricultural" means those farm activities or services carried on by, or performed for, farm owners or tenants on farms in connection with the cultivation of the soil, the harvesting of crops, or the raising, feeding, or management of livestock, bees, and poultry, and shall not include any packing and canning processing, transportation or marketing of articles produced on farms unless performed or carried on as an incident to ordinary farming operations as distinguished from manufacturing or commercial operations.

(Signed) Paul V. McNutt
Chairman,
War Manpower Commission

X-9173

DESIGNATION: Policy
SUBJECT: Women in Industry

Amendments to Policy on Employment in Industry of Women with Young Children

By virtue of the authority vested in me as Chairman of the War Manpower Commission by Executive Orders No. 9139 and 9279, the "Policy on Employment in Industry of Women with Young Children" approved by the War Manpower Commission on July 29, 1942, is hereby amended to read as follows:

"The expansion of the war production program, as well as the increasing requirements of our armed forces, necessitates the maximum utilization of our labor resources. In many areas the lack of adequate housing and transportation facilities compels full use of the local labor supply. These considerations make it necessary to employ large numbers of women in gainful occupations useful to the war effort. Appropriate measures have been and are being taken to provide for the recruitment and training of additional women. Prospective war production schedules indicate that such measures must be considerably expanded and intensified. In carrying out the Nation's program for the utilization of women workers, it is important that to the maximum extent, normal family life be preserved and maintained.

"To promote that end, and to promote the effective mobilization and maximum utilization of the Nation's manpower in the prosecution of the war, the War Manpower Commission hereby declares the following basic policies:

"I. The first responsibility of women with young children, in war as in peace is to give suitable care in their own homes to their children.

"II. In order that established family life may not be unnecessarily disrupted, special efforts to secure the employment in industry of women with young children should be deferred until full use has been made of all other sources of labor supply.

"III. Barriers against the employment of women with young children should not be set up by employers. The decision as to gainful employment should in all cases be an individual decision made by the woman herself in the light of the particular conditions prevailing in her home.

"IV. Whenever it is found that women with young children are gainfully employed in essential activities, or that the labor requirements of essential activities have not been met after the exhaustion of all other sources of labor supply and that to meet such requirements, women with young children must be recruited, it is essential that:

"(a) Such women be employed at such hours, on such shifts or on such part-time schedules as will cause the least disruption in their family life; and

"(b) If any such women are unable to arrange for the satisfactory care of their children at home during their working hours, adequate facilities be provided for the care of their children during working hours. Such facilities should be developed as community projects and not under the auspices of individual employers or employer groups."

Approved: [signature] Chairman
Effective date: January 13, 1943
Original filed in office of the Executive Director

As approved by the Management-
Labor Policy Committee
January 22, 1943

As approved by the War
Manpower Commission
January 27, 1943

POLICY ON EMPLOYMENT OF YOUTH UNDER 18 YEARS OF AGE

The necessary expansion of our military and industrial personnel requires maximum utilization of all available and potential sources of labor. These potential sources include youth between the ages of 14 and 18 years whose services would not be immediately required in normal times. If employed, however, it should be only under conditions which adequately safeguard their physical and intellectual development.

The first responsibility and obligation of youth under 18 even in war time is to take full advantage of their educational opportunities in order to prepare themselves for war and post-war services and for the duties of citizenship. It is essential that young people have the fullest possible opportunity consistent with the war effort to complete their education. Those with special aptitudes and capacity for further training should continue their education in order to develop their maximum abilities applicable to war and post-war needs.

In most cases youth under 18 can best contribute to the war program by continuing in school and, when their services are required, accepting vacation and part-time employment. However, it is recognized that the demands of the war period will increase the number who in normal times leave school to enter full-time employment before reaching 18. In any case, all forms of employment of

such youth, including employment in agriculture, must be specially safeguarded. Their services must be used in such ways as to bring about their maximum contribution to manpower needs consistent with the protection of their health and welfare and the fullest utilization and development of their aptitudes, abilities, and interests. The achievement of these objectives requires the active cooperation of young people, their parents, Government agencies, educational authorities, management and labor.

To promote proper utilization of the labor resources of youth with due regard to the welfare of youth and the future needs of the Nation, the War Manpower Commission hereby declares as basic National policy that:

1. School attendance laws and child-labor standards embodied in State and Federal laws be preserved and enforced, and the minimum standards hereinafter listed not be construed to warrant any relaxation of these laws or lowering of the standards embodied in them;

2. No one under 14 years of age be employed full-time or part-time as a part of the hired labor force;

3. Youth under 18 years of age be employed only:

   a. after the employer obtains proof of age in the form of employment or age certificates or, in case such certificates are not legally required, other reliable evidence;

   b. in work suited to their age and strength, avoiding all occupations that are hazardous or detrimental to health or welfare;

c. where provision is made for adequate meal and rest periods or time, and facilities therefor, adequate sanitary facilities; and safeguards for health and safety;

d. for periods suited to their age and strength, and in no case for more than 8 hours a day or 6 consecutive days, except as deviations may be necessary where the worker is engaged in continuing farm work of a non-seasonal character and is domiciled at the place of employment, or except as temporary departures from the above standard under adequate safeguards, where permitted for youth aged 16 and 17 under existing Federal or State laws, rules or regulations, may be necessary to meet a special emergency;

e. during hours of day not detrimental to their health and welfare; and

f. at wages paid adult workers for similar job performance;

4. Youth aged 14 or 15 be employed only when, in addition to the foregoing conditions:

a. qualified older workers are not available; and

b. the employment is not in manufacturing or mining occupations;

5. In-school youth be employed only to the extent that the combined school and work activities involve no undue strain,

and that combined school and work hours, at least for youth under 16, not exceed 8 a day;

6. In-school youth not be employed during school hours unless the Area or Regional Manpower Director has determined that temporary needs of an emergency character cannot be met by full use of other available sources of labor, in which case school programs shall be adjusted under plans that:

a. provide for the educational progress of those who take employment;

b. avoid interference with the school attendance of those who do not take employment; and

c. avoid the closing of any school or grades therein, except to the extent that the hours, terms or curricula are readjusted to preclude the curtailment of educational opportunities;

7. When war-time emergency cooperative arrangements have been entered into with school authorities for the part-time employment of in-school youth as a part of the school program, the employer be responsible for certifying to the school authorities that such employment will be in conformity with State and Federal laws governing the employment of minors and with the standards contained in Sections 3 to 7 above, and the school authorities be responsible for permitting school children to take only those jobs that will contribute definitely to their educational welfare and useful work experience;

8. When it is necessary to transport young people to and

from work, safe and adequate means of transportation be provided, and the period of work and transportation not exceed 10 hours a day;

9. here youth under 18 years of age are recruited in groups for agricultural work requiring them to live away from home, prior to placement, assurances be furnished by appropriate community or other agencies that suitable living conditions, sanitary facilities, health protection, supervision, and leisure-time activities will be provided; and in no case youth aged 14, or 15 be recruited for work requiring them to live away from home except where such work is in connection with programs conducted by recognized youth-serving agencies that provide close supervision;

10. Any youth interested in work in another area not leave his own area in search of work without first:

a. registering for employment at the nearest local office of the United States Employment Service or such other agency as may be designated by the War Manpower Commission;

b. presenting evidence of parental consent; and

c. being referred by such office to a specific job opening where he can be lawfully employed, and where there are suitable arrangements for housing.

WAR MANPOWER COMMISSION - 1943

December 8, 1942

Committee on Fair Employment
Practices
War Manpower Commission
Washington, D.C.

letter from: Mrs. Christensen
179 W. 137th St., YWCA.
New York City.

relative to employment practices

U.S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

December 8, 1942

Respectfully referred to

Committee on Fair Employment
Practices
War Manpower Commission
Washington, D.C.

letter from: Mrs. Christensen
179 W. 137th St., YWCA.
New York City.

relative to employment practices

The writer has been informed
of this reference.

Mary Anderson

(1990) Director.

Man Power

November 25, 1942

Fair Employment Practices Comm
Washington, D.C.

War Manpower Commission
Washington, D.C.

copy of letter from:

Miss Peggy Checkley
1008 Germania Ave.
Bay City, Mich.

re employment practices in

her location.

Fenley

War Manpower

November 23, 1942

War Manpower Commission
— and —
Labor Requirements Committee
War Production Board
Washington, D.C.

copy of letter from:

Miss Josephine Posynski
Ottsville, Pa.

self-explanatory

c/y sent

War Man Power
~~Miss Anderson~~
~~Christman~~
~~Nicodemus~~
~~Spivey~~
~~Stitt~~
~~Mellett~~
~~Robinson~~
~~Hyde~~
Returns to RVN

rec'd 3/15/43

POLICIES GOVERNING THE
EMPLOYMENT OF WOMEN IN WAR
INDUSTRIES

1. Pay: The War Manpower Commission and National War Labor Board have established a guiding policy of "equal pay for equal work" for women in war industry.

2. Health and Welfare: The Women's Bureau of the Department of Labor, working with medical specialists and women in industry, had developed a set of standards for safeguarding the health and welfare of women workers, in an effort to aid both employers and workers in securing the best possible conditions. These standards pertain to (a) lifting of heavy weights; (b) adequate time off for meals, recreation, rest; (c) pregnancy; (d) safety clothing; (e) facilities for washing, rest, and recreation.

Note -
I do not know why this was sent to me, nor who it was who sent it.
RVN

War Man Power

~~Miss Anderson~~
~~Christy~~
~~Nicodemus~~
~~Spring~~
~~Stitt~~
~~Mettert~~
~~Robinson~~
~~Hyde~~

Returned to WMC

rec'd 3/15/43

POLICIES GOVERNING THE
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Miss Turner

A mystery -
Please file
under WMC

Note -
I do not know why
this was sent to
me, nor who it
was who sent it.
RVN

OFFICE FOR EMERGENCY MANAGEMENT
WAR MANPOWER COMMISSION
WASHINGTON

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, $300

WASHINGTON MAR 13 10 PM 1943 D. C.

DEPARTMENTAL PERMIT No. 16

Miss Nyswander
Women's Bureau
U. S. Department of Labor
Washington, D. C.

War Manpower

September 28, 1942

Hon. Paul V. McNutt, Chairman
War Manpower Commission
Office for Emergency Management
Washington, D. C.

My dear Mr. McNutt:

I shall be very glad indeed to attend the first meeting of the Women's Advisory Committee to the War Manpower Commission on October 1, 1942, at 10:00 A.M., in Room 5545 of the New Social Security Building.

I appreciate this invitation very much and I want to cooperate wholeheartedly with you and this committee in the effective employment of women in the war industries. We have done a great deal along this line and we have information that I think would be helpful to the Women's Advisory Committee.

With very best wishes,

Sincerely yours,

Mary Anderson, Director

MA:IS

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
SEP 26 1942
DEPARTMENT OF LABOR

SEP 25 1942

Dear Miss Anderson:

The first meeting of the Women's Advisory Committee to the War Manpower Commission will be held on Thursday, October 1, 1942, at 10:00 A.M., in Room 5545 of the New Social Security Building.

I take great pleasure in inviting you to attend this first meeting and to take part in the deliberations of the Committee. I should appreciate your letting me know at your earliest convenience whether it will be possible for you to attend.

With kindest regards and every good wish,
I am,

Very sincerely yours,

Paul V. McNutt

Chairman

Miss Mary Anderson
Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.



Files
War P

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July 8, 1943.

Miss Mary B. Gilson,
Manpower Utilization Consultant,
War Manpower Commission,
10 Post Office Square,
Boston, Mass.

My dear Miss Gilson:

This is in reply to your letter of July 1 in which you request information on the present status of the "equal pay" principle, for use at a symposium at the annual Board meeting of the Business and Professional Women's Clubs.

Your question as to what has been the "actual effect" of present wage policies - Government, union, and management - on securing women's equal treatment in the matter of wage rates, raises many interesting speculations. I think it is perhaps too early to tell what the final effect will be, but certainly the present trend is clearly in the direction of paying women the same rate as men where they replace men or work side by side with them on similar operations. Women are showing by their work in the war program that they can perform so-called men's jobs efficiently and well, if they are given proper training, and I believe that as a result of this experience women will be in a much stronger position than ever before to demand the rate for the job, without regard to sex.

The War Labor Board's position in support of the "equal pay" principle has undoubtedly had a great influence on present plant practices. As you know, the Board laid down the rule, in the General Motors and Brown and Sharpe cases, in September 1942, that women should be paid the same rates as men "for work of comparable quantity and quality on comparable operations"; this rule was stated to apply not only where women took over jobs formerly held by men, but also where they did comparable work with men, irrespective of replacement. These cases also stated that the mere fact that women cannot do as heavy physical labor as men, thus necessitating that the job be further broken down or additional labor employed, did not excuse the employer from paying women the same rates unless unit labor costs were increased as a result of the change. The Board has adhered to these principles in subsequent cases.

In November 1942, the Board issued its General Order No. 16, authorizing employers, without prior Board approval, to equalize wage rates paid women with those paid men. Such adjustments must be reported to the Board and were subject to its final review. Although suspended for a short period after the President's Hold-the-Line Order of April 8, General Order 16 is in effect at this time. I am enclosing a

copy of a press release which was issued by the War Labor Board early in June in response to a request by the Women's Bureau for a re-statement of the Board's position on this subject. As you will see in the release, over 600 firms, acting under authority of General Order No. 16, voluntarily adjusted the rates of women employees to equal those of men, in the six-month period between November 1942 and June 1943.

Although the War Labor Board both through its decisions and its General Order 16, has been of immense benefit in securing women in many plants the rate for the job, certain other factors must also be taken into account in determining the practical effect of the Board's policy on this subject. In the first place, as you know, the Board does not fix any wage rates on its own initiative: it simply exercises authority over adjustments proposed by employers or unions, both those agreed on by the parties and those which are the subject of dispute. Consequently, there are many instances of wage discrimination against women which do not come before the War Labor Board.

In the second place, the War Labor Board does not take affirmative responsibility of equalizing women's wage rates even in cases brought before it. It merely passes on proposal made by the employer and union. Thus, if the employer voluntarily agrees to equalize wage rates, he may do so under General Order No. 16, and report his action to the Board. If the union brings a case to force the employer to equalize wage rates, the Board applies the rule laid down in the General Motors case and orders him to do so. However, if the union brings a wage adjustment case in which wage discrimination against women exists but it not made an issue, the Board's policy in numerous decisions has been to make whatever wage adjustments are called for without, at the same time, removing the discrimination against women. In other words, unless "equal pay" is made an issue, women as well as men may receive a percentage increase over their previous rates but women will not receive the rate paid to men, or "the rate for the job."

Another factor which has had a deterring effect on successful application of the Board's "equal pay" policy is that the Board, having found in an individual case that wage discrimination exists in a particular plant, does not undertake to determine which women employees on which operations are entitled to receive "equal pay." In the General Motors case, the Board merely directed the employer to apply the "equal pay" principle, but left it to the employer and the union to work out a system by which the principle could be applied. This result was to be achieved through consultation between employer and union, and no time limit was set for carrying the order into effect. You can readily understand that in certain circumstances a woman worker may find that the war is over before it has been determined to the employer's satisfaction that she is performing work "of comparable quality and quantity of comparable operations".

The problem, with respect to "equal pay", as I see it, is to eliminate the distinction between "men's jobs" and "women's jobs" for wage classification purposes. Job surveys made by Women's Bureau agents in war plants demonstrate conclusively, that such a distinction is artificial and has no factual basis. In a recent survey of the small arms and cannon

manufacturing industry, the Women's Bureau found that men and women interchanged on the same or comparable work on the same shift or women on the day shift performed work which men performed on the night shift. Work which was done exclusively by men in one plant was performed entirely by women in another plant. The Women's Bureau has always maintained that the wage rate should be set for the job, irrespective of the sex of the worker. As a practical matter, many union contracts, no longer speak of "female rates" and "male rates" but simply refer to "job rates." Where this practice is followed the job rate must be paid to any worker, whether man or woman, and the question of "equal pay" does not arise.

Recent surveys of war plants made by Women's Bureau field agents indicate that "equal pay" for women is now the prevailing policy in these plants. Of the plants visited so far in 1943, 104 plants, employing a total of 801,778 workers, including 145,053 women, reported on the subject of "equal pay". Of these, 91 plants, or 87.5 percent, reported that women were paid the same rates as men for the same work. These 104 plants included 30 plants in the aircraft industry, all but one of which reported adoption of the "equal pay" policy; and 27 shipbuilding firms, all of which gave women "equal pay". All of the six bag and shell-loading plants reporting on this subject also paid women the same rates as men on the job. In other industries, such as small arms and small arms ammunition, guns and artillery ammunition, radio and electric products, "equal pay" was by far the prevailing policy.

Data from the same 104 plants on their minimum entrance rates for men and women indicate a practical difficulty that many women encounter in their struggle for "equal pay", namely, that often they are not given an opportunity to do the same work, or an equal chance for upgrading and promotion. Of these 104 plants, 72 plants, or 69.2 percent, reported that they started all workers - men and women - at the same beginning rates. In other words the number of plants which took women on at the same beginning rate as men was considerably smaller than the number of plants that reported they paid women the same rate for the same work - 72 as compared with 91. This appears to indicate that women were assigned to work at a lower grade at the beginning, and were not given an opportunity to do the same work as men. Part of the "equal pay" problem, of course, consists of giving women equality of opportunity. This has been only partially solved by their admission to training courses on an equal basis, but I hope it will gradually work itself out as employers continue to have more need for women and women have occasion to prove their ability at less customary types of work.

I hope this information will be useful to you for yours discussion at the symposium. An additional fact of general interest, as you know, is that three States now have "equal pay" laws on their statute books - Michigan, Montana, and Washington. The Michigan law, enacted in 1919, has been upheld as constitutional by the Michigan Supreme Court (General Motors Corp. v. Read, 293 N.W. 751). In Illinois, an "equal pay" bill passed both houses at the recent legislative session but we have not as yet had word that it was enacted into law. Bills pending in Texas and California were defeated. I am enclosing a copy of Women's Bureau Bulletin 196, which contains a summary of arguments for "Equal Pay."

Sincerely yours,

MA/AA/nb

Mary Anderson, Director.



OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

10 Post Office Square
Boston, Massachusetts

OFFICE OF THE
REGIONAL DIRECTOR

July 1, 1943



Miss Mary Anderson
Women's Bureau
Department of Labor
Washington, D. C.

Dear Mary:

Thank you so much for the helpful material you sent me.

And now one more request. I am to speak at the annual meeting of the Board of the National Federation of Business and Professional Women's clubs on July tenth. The subject of the symposium in which I am to take part is 'Equal Pay for Equal Work' and I suppose a lot of the Woman's Party stuff will be handed out.

I want the latest data on 'Equal Pay' etc. I realize the War Labor Board and Wage & Hour Division and some of the unions and some managers are giving the movement a push but I want to know how much actual effect these and other influences have really had.

Any help you can give me and a statement of the present problem as you see it will be deeply appreciated.

Cordially yours,

Mary B. Gilson

Manpower Utilization Consultant



Aug. 16, 1943

Title: III
Section: 3-7

DESIGNATION: Regulation No. 7
SUBJECT: Governing Employment Stabilization Programs

By virtue of the authority vested in me as Chairman of the WarMC by Exec. Order Nos. 9139 and 9279, and WMC Regulation No. 4, as amended effective Aug. 16, 1943, I hereby prescribe the following regulation governing WMC employment stabilization programs:

Sec.
907.1 General Policy
907.2 Control of Hiring and Solicitation of Workers
907.3 Establishment and Approval of Programs
907.4 Minimum Standards in General
907.5 Optional Provisions
907.6 Definitions
907. 907.7 Revocation of Previous Policies
907.8 Effective Date

Authority: Sections 907.1 to 907.8 incl. issued under Exec. Order No. 9139, 7 F.R., 2919; Exec. Order No 9279, 7 FR., 10177; Part 904 (Reg. No. 4) 8 F.R.

907.1. General Policy (a) Objectives. The purpose of an employment stabilization program is to assist the WMC in bringing about, by measures equitable to labor and management, and necessary for the effective prosecution of the war:

(1) the elimination of wasteful labor turnover in essential activities.
(2) the reduction of unnecessary labor migration
(3) the direction of the flow of scarce labor where most needed in the war program
(4) the maximum utilization of manpower resources.

(b) Authority and Responsibilities of Mgt-Labor Committees. The several Regional and Area Mgt-Labor WMCommittees are hereby authorized to consider questions of policy, standards, and safeguards, in connection with the establishment and the administration of employment stabilization programs, and to make recommendations to their respective Manpower Directors.

(c) Encouragement of Local Initiative and Use of Existing Hiring Channels. To the maximum degree consistent with this regulation and with the objectives of employment stabilization programs, local initiative and cooperative efforts shall be encouraged and utilized and maximum use made of existing hiring channels such as private employers, labor organizations, professional organizations, schools, colleges, technical instututions and government agencies.

(d) Special Authorization to Designated Government Agencies. The Chairman of WMC may authorize designated government agencies to perform some or all of the functions of the USES under this regulation in accordance with such conditiosn and procedures as he may prescribe.

907.2. Control of Hiring and Solicitation of Workers.

(a) After Establishment of Employment Stabilization Program. All hiring and solicitation of workers in, or for work in, a locality for which no WMC employment stabilization program has been established shall, pending the establishment of such a program, be conducted in accordance with subsections (a) to (l) inclusive, of Section 907.4 of this regulation which subsections shall be considered an employment stabilization program for this purpose.

907.3. Establishment and Approval of Programs.

(a) GeneralEmployment stabilization programs shall be formulated by Area or

Regional Manpower Directors after consultation with their Mgt-Labor WMCommittee, but shall not become or continue operative except as provided in this section.

(b) Area Programs. Area employment stabilization programs may be established for any WMC administrative area designated by a Regional Manpower Director for employment stabilization purposes.

(c) Other Programs. Employment stabilization Programs shall be established not later than Oct. 15, 1943, for all portions of States or regions for which no area employment stabilization program has been established.

(d) New Programs. Employment stabilization programs which are not in effect prior to the effective date of this regulation, shall be submitted to the Regional Manpower Cirector for his approval. No such program shall become operative until approved by the Regional Manpower Director.

(e) Existing Programs. All employment stabilization programs in effect on the effective date of this regulation shall be promptly amended by the appropriate Manpower Director, after consultation with his Mgt-Labor WMCommittee, so as to include therein the provisions set forth in Section 907.4 of this regulation, and otherwise to conform to this regulation. The program thus amended shall be submitted to the Regional Manpower Director for his approval. Any existing programs not so amended and approved by Oct. 15, 1943 shall cease to have operative effect on and after such date.

(f) Termination of Industry Programs. No WMC industry employment stabilization program shall be established after the effective date of this regulation. No such existing program shall continue in effect on or after Oct. 15, 1943, unless specifically approved by the Chairman of the WMC.

(g) Approval. The Regional anpower Directors are authorized to approve any employment stabilization program which includes the provisions set forth in Sec. 907.4 of this regulation, and otherwise conforms to the provisions of this regulation.

907.4 Minimum Standards in General. Except as provided in Sec. 907.5 (a) (5) every employment stabilization program approved after the effective date of this regulation shall contain the following provision:

(a) General. A new employee, who during the preceding 60-day period was engaged in an essential or locally needed activity may be hired only such hiring would aid in the effective prosection of the war. Such hiring shall be deemed to aid in the effective prosecution of the war only if:

(1) such individual is hired for work in an essential or locally needed activity or for work to which he has been referred by USES, and

(2) such individual presents a statement of availability from his last employment in an essential or locally needed actitivy, or is referred by the USES of the WMC, or is hired with its consent, as provided herein.

(b) Issuance of Statements of Availability by Employers. An individual whose last employment is or was in an essential or locally needed activity shall receive a statement of availability from his employer if:

(1) he has been discharged or his employment has been otherwise terminby his employer, or

(2) he has been laid off for an indefinite period, or for a period of 7 or more days; or

(3) continuance of his employment would involve undue personal hardship, or

(4) such employment is or was at a wage or salary or under working conditions below standards established by State orFederal law or regulation, or

(5) such employment is or was at a wage or salary below a level established or approved by the NLRB (or other agency authorized to adjust wages or approve adjustments thereof) as warranting adjustment, and the employer has failed to adjust the wage in accordance with such level or to apply to the appropriate agency for such adjustment or approval thereof.

(c) Issuance of Statements of Availability by USES

(1) a statement of availability shall be issued promptly to an individual when any of the circumstances set forth in subsection (b) is found to exist in his case. If the employer fails or refuses to issue a statement,

the USES of the WMC upon finding that the individual is entitled thereto, shall issue a statement of availability to the individual.

(2) A statement of avilability shall be issued by the USES to any individual in the employ of an employer who the WMC finds, after notice, hearing and fina l decision, has not complied with any WMC employment stabilization program, regulation or policy, and for so long as such employer continues his non-compliance after such finding.

(d) Referral in Case of Under-Utilization. If an individual is employed at less than than full time or at a job which does not utilize his highest recognized skill for which there is a need in the war effort, the USES may, upon his request, refer him to other available employment in which it finds that the individual will be more fully utilized in the war effort.

(e) Workers Who May be Hired Only Upon Referral by the USES. A new employee may not be hired solely upon presentation of a statement of availability, but may be hired only upon referral by, or in accordance with arrangements with, the USES, when:

(1) the new employee is to be hired for work in a critical occupation, or his statement of availability indicates that his last employment was in a critical occupation.

(2) The new employee has not lived or worked in the locality of the new employment throughout the preceding 30-day period.

(3) The new employee's last regular employment was in agriculture and he is to be hired for non-agricultural work provided that no such individual shall be referred to non-agricultural work for a period not to exceed six weeks without referral or presentation of a statement of availability.

(f) Exclusions. No provision of the employment stabilization program shall be applicable to:

(1) the hiringof a new employee for agricultural employment;

(2) the hiring of a new employee for work of less than seven days' duration, or for work which is supplementary to the employee's principal work; but such work shall not constitute the individual's "Last employment" for the purposes of the program, unless the employee is customarily engaged in work of less than seven days' duration;

(3) the hiring of an employee in any Territory or possession of the United States, except Alaska and Hawaii;

(4) the hiring by a foreign, State, county, or municipal government, or their political subdivisions, or their agencies, and instrumentalities, or to the hiring of any of their employees, unless such foreign, State, county, or municipal government, or political subdivision or agency or instrumentality has indicated its willingness to conform, to the maximum extent practicable under the Constitution and laws applicable to it, with the program;

(5) the hiring of new employee for domestic service, or to the hiring of a new employee whose last regular employment was in domestic service;

(6) the hiring of a school teacher for vacation employment or the rehiring of a school teacher for teaching at the termination of the vacation period.

(g) Appeals. Any worker or employer may appeal from any act or failure to act by the War Manpower Commission under the employment stabilization program, in accordance with regulations and procedures of the War Manpower Commission.

(h) Content of Statements of Availability. A statement of availability issued to an individual pursuant to the program shall contain only the individual's name, address, social security account number, if any, the name and address, of the issuing employer, or War Manpower Commission officer and office, the date of issuance, a statement as to whether or not the individual's last employment was in a critical occupation, and such other information not prejudicial to the employee in seeking new employment as may be authorized or required by the War Manpower Commission.

(i) Solicitation of Workers. No employer shall advertise or otherwise solicit for the purpose of hiring any individual if the hiring of such an individual would be subject to restrictions under the employment stabilization program, except in a manner consistent with suchrestrictions.

(j) Hiring. The decision to hire or refer a worker shall be based on qualifications essential for performance of or suitability for the job, and shall be made without discrimination as to race, color, creed, sex, national origin, or except as required by law, citizenship.

(k) Representation. Nothing contained in the program shall be construed to restrict any individual from seeking the advice and aid of, or from being represented by, the labor organization of which he is a member or any other representative freely chosen by him, at any step in the operation of the program.

(l) General Referral Policies. No provision in the program shall limit the authority of the United States Employment Service to make referrals in accordance with approved policies and instructions of the War Manpower Commission.

907.5 Optional Provisions. Regional and Area Manpower Directors, after consultation with their Management-Labor Manpower Committees, may include in employment stabilization programs provisions such as the following designed to meet special manpower needs in the localities affected, but except as authorized in Section 907.5 (a) (5), no such provision shall conflict with Section 907.4 of this regulation or with any State or Federal law:

(a) Subject to standards and instructions approved by the Chairman of the War Manpower Commission, provision for adding to Section 907.4 (e) of this Regulation the following categories of individuals who must be hired only upon referral by, or in accordance with arrangements made with the United States Employment Service..

(1) Individuals for work inspecified categories of oocupations in activities in which manpower shortages threaten critically needed production, or
(2) Individuals for work in specified shortage occupations (in addition to critical occupations), or
(3) Individuals whose statements of availability indicate that they were most recently employed in such occupations, or
(4) Individuals who can be readily identified as able to meet specifications required for work in such occupations or activities; a program containing such a provision may apply only to a labor market area which, on the date of the approval of the program, was classified by the War Manpower Commission as a "Group I," or "Group II," area, or

(5) All individuals. A program containing such a provision may apply only to a labor market area which, on the date of the approval of the program, was classified by the War Manpower Commission as a "Group I," or "Group II," area. Such a program, may, notwithstanding anything to the contrary in this regulation, include necessary modifications of Section 907.4.

(b) Provisions designed to protect individuals from loss of seniority or other reemployment rights.

(c) Provisions designed to require or promote more effective utilization of their manpower by employers.

(d) Provisions designed further to control advertising or other solicitation of individuals.

(e) Provisions designed to afford individuals a greater measure of protection against arbitrary discharge.

(f) Provisions designed to facilitate the employment of individuals during vacation, probationary, off-season, or other short periods in work other than that in which they have customarily engaged, and to facilitate the return of such persons to their customary employment.

(g) Provisions governing the release of individuals by employers by whom they were hired or solicited in violation of an employment stabilization program and other provisions pertaining to the enforcement of a program.

(h) Provisions designed to minimize loss of working time of applicants for statement of availability or referral.

(i) Provisions designed to permit the hiring of an individual by, or of an individual whose last regular employment was with, a small establishment without regard to the requirements of the program, except that no establishment regularly employing more than eight employees shall be treated as a small establishment for the purpose of this paragraph.

907.6 Definitions. As used in this regulation:

(a) Agriculture means those farm activities carried on by farm owners or tenants on farms in connection with the cultivation of the soil, the harvesting of crops, or the raising, feeding, or management of livestock, bees, and poultry, and shall not include any packing, canning, processing, transportation or marketing of articles produced on farms unless performed or carried on as an incident or ordinary farming operations as distinguished from manufacturing or commercial operations.

(b) State includes Alaska, Hawaii, and the District of Columbia.

(c) New employee means any individual who has not been in the employment of the hiring employer at any time during the preceding 30-day period. For the purpose of this definition, employment of less than seven days' duration and employment which is supplemental to the employee's principal work shall be disregarded.

(d) Critical occupation means any occupation designated as a critical occupation by the Chairman of the War Manpower Commission.

(e) Essential acitivity means any activity included in the War Manpower Commission List of Essential Activities.

(f) Locally needed activity means any activity approved by the Regional Manpower Director as a locally needed activity.

(g) The terms Employment and work as applied to an individual engaged in principal and supplementary employments mean his principal employment.

(h) Employment stabilization program includes any arrangemant involving restrictions on separation or hiring of workers, whether through issuance of statements of availability, referral by the United States Employment Service or otherwise.

907.7 Revocation of Previous Policies. The War Manpower Commission Policy to Prevent Pirating of War Workers, dated July 16, 1942, appearing at 7 F. R. 5500, and Part 907, Sections 907.1 to 907.21, inclusive, War Manpower Commission Policies for Employment Stabilization Programs which Include the Exercise of Hiring Controls in Areas of Manpower Shortage, effective February 1, 1943, appearing at 8 F. R. 7227 (as amended, June 20, 1943, 8 F. R. 9182), are hereby revoked, effective August 16, 1943, together with all instructions and procedures previously issued by the War Manpower Commission relating to the formulation and content of employment stabilization programs.

907.8 Effective Date. This regulation shall become effective August 16, 1943.

Part Time

Collins-WMC-3336

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

For Immediate Release
Friday, September 24, 1943

PM-4448

The adoption on a much wider scale of the part-time or split shift for women workers, already being undertaken in some plants with satisfactory results, was recommended by the War Manpower Commission's Women's Advisory Committee meeting in Washington yesterday and today.

Miss Margaret Hickey, Chairman of the Committee, said that such an enlarged program would relieve shortage of workers by bringing into the labor market many capable women with home responsibilities and others engaged in non-industrial pursuits who would be unable to work an eight-hour day, but who would be able to perform on the split shift.

The Committee defines part-time work as employment for substantially fewer hours per week than is customary in the occupation, the establishment, or the community. The work does not usually entail more than from 20 to 30 hours per week, though the number might vary from one employer or industry to another.

The Committee recommended that part-time employment be established only when:

a. The available supply of full-time workers is inadequate to meet the current or shortly anticipated demand.

b. Full use has been made of all full-time labor reserves in the community. Special attention should be given to full utilization of minority groups, before any program for part-time is initiated.

c. It is necessary to discourage in-migration of full-time workers to the community due to overcrowded conditions in the community and inadequate community resources such as housing, schools, transportation, recreation, day care for children, etc.

d. Openings exist or can be developed on which part-time workers can be effectively utilized.

e. Standards of health, wages and working conditions for part-time workers will be maintained at the same level as for full-time work in the same occupation.

Housewives constitute the largest group from which part-time workers can be drawn. The Committee suggested that in arranging programs for them the home schedule of the individual workers be considered. Late evening shifts and those which run through the dinner hour, for example, are usually not convenient for housewives.

Miss Hickey said that other groups found to be available for part-time work include older men and women, professional or clerical workers, persons working less than 48 hours per week in their regular employment, self-employed

(over)

X-28522

persons and others in less essential work who would like to aid the war effort, but wish to continue their regular activities.

The Committee emphasized that careful selection and placement of part-time workers is essential to their effective utilization. The success of part-time programs depends (1) upon acceptance by the employer; (2) upon the cooperation b of and acceptance by full-time employees in the same establishment; and (3) upon the satisfaction that the part-time worker takes in contributing to the war effort.

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DECLASSIFIED
E.O. 11652, Sec. 3(E) and 5(D) or (E)
Authority 750127
By DR/SM NARS, Date 2/28/75

STRICTLY CONFIDENTIAL
Not to be released
July 5, 1943.

PROPOSED REVISION IN CONTENT AND USE OF LISTS OF ESSENTIAL ACTIVITIES AND OCCUPATIONS

The lists of essential activities and essential occupations were established almost a year ago in accordance with the WMC Directive No.1. As was anticipated, these lists have been useful as an administrative device with respect to a number of different aspects of the war manpower program. Their principal use in the beginning was for assisting local boards and other agencies of the Selective Service System in occupational classification of registrants. But with the increased rate of induction of registrants and the reduction in the number of men in the age group 18-38 who can be deferred for any reason, there has been a diminishing general applicability of the lists for selective service classification purposes.

More recently, the most important use of the lists has become that made of them by other operating units of the WMC in connection with employment stabilization programs. This has been especially true since the promulgation of Exec. Order No. 9328. The material reduction in the number of men who can be deferred and the shift in the importance of the lists in connection with employment stabilization programs reflect a need for a revision in the character of the lists and a change in the policy governing their use.

The following revisions in the content and use of the lists of essential activities and occupations are being adopted.

1. The current list of essential activities and occupations will be rescinded.

2. A new list of essential activities will be issued. This list will include:

(a) the activities now contained in the current list, with
(b) the activities most important to the war program printed in bold face type to distinguish them from other essential activities. The most important activities will be known as critical activities.

3. The new list will not include essential occupations.

4. Instead, a list of critical occupations, i.e., highly skilled occupations in which no surplus of workers exists, will be prepared and be known as critical occupations.

5. The critical activities and critical occupations will not be changed or supplemented, except where national needs of war production and the civilian economy have been radically altered.

6. The new lists will be supplied the agencies of the Selective Service System as constituting the most important activities and occupations in the manpower recruitment and allocation program.

7. Registrants qualified in a critical occupation but not engaged in an essential or critical activity will be encouraged through the United States Empl. Svc. to transfer to such activities and the induction of such registrants will be postponed until Sept. 3, 1943. In the event a registrant skilled in a critical occupation has not transferred to an essential activity by Sept. 1, 1943, he shall be denied further occupational deferment, and if not otherwise entitled to deferment be inducted into the military service.

8. Agencies of the Selective Service System will continue to give appropriate consideration to the occupational classification of all registrants. Unless specifically notified to the contrary, the agencies of the Selective Service System will make no distinction between essential and critical activities. Registrants engaged in critical occupations in essential or critical activities shall be given utmost consideration. The SSS Headqtrs will take all proper administrative action to insure thorough consideration of all occupational classifications by agencies of the SSS

9, The USES will use the new lists in the administration of the labor market for recruitment, transfer, and placement of workers.

10. In addition, the employment office will give the same consideration to locally-needed activities as is accorded to essential activities in the administration of the labor market.

11. The occupations designated as critical within the new list will be uniformly handled by all local offices in the employment stabilization program.

12. No worker engaged in a critical occupation in an essential activity will be expected to transfer to a critical activity, except when the USES in accordance with the policies and regulations of the WMC determines that such a transfer is necessary as an aid to the further prosecution of the war.

13. If a transfer from an essential activity to a critical activity is required in the interest of the war effort and a registrant chooses not to transfer in accordance with the request of the local office of the USES. ~~xir xipexxxpgxyjrxkrxxx~~ the choice of the registrant will be reported to the local boards of the SSS and his case shall be handled in the same manner as a registrant skilled in a critical occupation who failed to transfer to an essential activity, as set forth in No 7 above.

MMF - WMC-WAC

WAR MANPOWER COMMISSION

Prepared by: Bureau of Program Requirements — CONFIDENTIAL - Not to be released
Purpose: Presentation to War Manpower Commission

May 31, 1943

DEVELOPMENTS IN THE EMPLOYMENT OF WOMEN

By early 1942, the supply of male workers in a number of war production centers was nearing the exhaustion point. Recruitment of women, both for those activities in which they were customarily employed and their induction into industries and occupations from which they were traditionally barred, became an urgent necessity.

Despite this need there was considerable resistance on the part of many employers towards hiring women workers. Shortages of male labor were localized in a relatively small number of areas, and attractive employment opportunities encouraged the migration of male workers. As a result, for some time after local shortages of male labor were encountered, employers' demands could be filled to a large extent by in-migrant male workers. The resultant pattern is now well known. Overcrowded community facilities, especially lack of housing discouraged further in-migration and contributed to high absentee and turnover rates.

In addition to restrictive hiring practices on the part of employers, occasional opposition to the use of women was voiced by trade union locals. Accustomed to protecting their members' employment rights in a depressed labor market, trade union officials, generally at the local level, feared the displacement of men by women and a lowering of wage levels.

During the past year impediments to the employment of women diminished. Unemployment dropped steadily to a low of 900,000 in April 1943. The supply of male workers was rapidly being depleted in an ever growing number of areas as Selective Service withdrawals were accelerated and employment for war production increased. In-migration as a source of workers was discouraged as community facilities were used to capacity. Continued pressure from the War Manpower Commission led to the fuller utilization of local labor reserves, chiefly women. Further impetus was given the employment of women by their successful performance in a wide variety of occupations. In many places there was no longer a choice--the only sizeable labor reserve from which demand for war production and civilian activities could be filled was women. Transfer of men from less essential activities helped but was inadequate.

The change in employer attitudes towards hiring women was rapid. In January 1942, employers were willing to hire women for only 29 percent of their job openings in professional, skilled, and semi-skilled occupations; in July they were willing to hire them in 55 percent. The proportion increased from 18 to 63 percent in the professional and managerial occupations, from 16 to 40 percent in the skilled occupations, and from 46 to 70 percent in the semi-skilled. This increased willingness to hire women was evident even in heavy industries, such as iron and steel, and shipbuilding.

By March 1943, the employment of women reached an all-time peak of 15.2 million; 1.9 million more than were employed in March a year ago. Employment of women in non-agricultural industry--14.3 million in March 1943--accounted for 1.8 million of the total increase, exactly balancing the loss of men during the period and maintaining the March 1942 level of 42.0 million in non-agricultural employment. This large scale replacement of men by women raised the proportion of employed women who work in non-agricultural industry from 30 percent in March 1942 to 34 percent in March 1943. Total male employment declined 5 percent over the year but employment of women went up 14 percent. The proportion of women in establishments essential to war production rose from 15 percent in May 1942 to 25 percent in March 1943.

The shift in labor force composition has been most marked in the manufacturing industries. Comprising 16 percent of employment in manufacturing industries as a whole in May 1942, female employment expanded to 27 percent during the 10 month period ending March 1943. (Table 1).

Table 1.--Proportion of women employed in selected industries, May 1942 and March 1943 1/

Industry	Proportion of women employed in--	
	May 1942	March 1943
Total, all industries	14.6	25.4
Mining	1.2	1.5
Contract construction	2.3	3.3
Manufacturing	16.0	26.8
Ordnance and accessories	16.3	25.5
Guns	10.1	15.8
Ammunition, except for small arms	25.6	33.4
Tanks	5.0	10.0
Explosives	15.7	17.8
Small-arms ammunition	37.1	44.1
Firearms (caliber .60 and under)	15.3	31.2
Food and kindred products	21.4	32.9
Textile-mill products	44.6	47.8
Apparel and other finished products made from fabrics and similar materials	69.9	77.2
Rubber products	26.9	38.1
Leather and leather products	40.1	47.3
Iron and steel and their products	7.8	13.7
Aircraft and parts	10.5	30.8
Ship and boat building and repairing	2.4	7.6
Electrical equipment for industrial use	24.4	36.4
Communication equipment and related products	40.1	56.4
Machinery (except electrical	9.4	17.6
Scientific instruments	25.7	43.2

1/ Based on data from the ES-270 reporting program.

In 8,000 manufacturing plants which reported employment figures for both May and November of last year, the overall increase in employment over the 6-month period was 17 percent; employment of women in these same firms rose 52 percent. In these establishments--

Where total employment increased--	Female employment increased at least--
10-20 percent	20 percent
20-30 percent	40 percent
30-40 percent	60 percent

Even sharper increases were reflected by firms in all munitions industries combined, where the increase of 19 percent in total employment was accompanied by a 69 percent rise in the number of women workers.

The integration of the greatly increased numbers of women in industry has been hastened by job breakdowns which permit the use of unskilled or inexperienced women, and which screen out elements of jobs which women are unable to perform. Training programs--both on-the-job and in the vocational school--designed to provide inexperienced workers with unit skills have further hastened this process.

Table 2.--Female enrollments in vocational training programs, March 1942 and March 1943

	Enrollments		Percent of total	
	March 1942	March 1943	March 1942	March 1943
Vocational Training for War Workers....	---	---	---	---
Preemployment 1/....	15,451	39,408	8.7	32.4
Supplementary 1/....	3,565	41,926	2.1	25.4
National Youth Administration 2/...	14,513	56,666	20.2	46.1
Engineering, Science, Management War Training 1/.....	12,779	33,190	9.4	22.0

1/ Data from the Office of Education
2/ Data from the National Youth Administration

By December 1943 as high as one-third of the female population 14 years and over--17.4 million women--will be required for the civilian labor force and the armed forces. This will necessitate a net addition to the labor force of close to 2 million women during 1943. Munitions industries alone will absorb 1.3 million women. These figures must be regarded as an absolute minimum, since it does not take account of the additional entrants who will be needed to replace women withdrawing from the labor market.

Although employers' reluctance to hire women has diminished individual instances of continued refusal must be coped with. Moreover, the general reluctance of employers to utilize older women remains serious. The employment problems of the older worker are now being studied, and a program to encourage and facilitate the increased utilization of this segment of the labor reserve will be developed.

With increased employment opportunities rapidly siphoning off those women who can readily be brought into the labor market, shortage areas are confronted with mounting difficulties in recruiting an adequate number of women workers. In most areas there is still a sizeable potential supply of women but agressive action is needed to recruit them. A variety of devices

have been used in intensive recruitment. A sustained informational campaign to acquaint local women with the jobs available to them and to impress upon them the seriousness of the need for their services has been found a prerequisite to successful recruitment of women. The problem has shifted from one of convincing employers to one of overcoming women's reluctance or inertia to taking wartime employment. There is now in publication a comprehensive plan for use in recruiting women in critical war areas. The plan includes detailed suggestions for getting newspaper, radio, and movie theater support. Sample news releases, pictures, editorials, advertisements, radio features, and speeches are also contained in a form readily adaptable to local circumstances.

In addition to an intensive education and information campaign, some areas have taken additional steps designed to facilitate the recruitment of women. These techniques include special women's recruitment centers, the use of itinerant local office interviewers, house-to-house canvass of women who are not employed, special recruitment in sectors of a community adjacent to plants with labor demands for women, and the use of a recruitment staff to make home visits and refer women directly to jobs.

Women's recruitment centers located in the heart of shopping districts have been established in a number of areas. In Baltimore, which has had one of the most sustained programs for the recruitment of women, an average of 1,600 women per month have visited the special office since September 1942. From this office alone, almost 1,000 referrals to war industries have been made each month. In addition, the publicity increased registrations at the two regular offices and accelerated direct applications for employment at the plants. In Cleveland the War Manpower Center was visited during the first month of operation by over 3,000 women of whom 1,150 were referred directly to war jobs. A team of interviewers will shortly visit homes in the Euclid sector of Cleveland to refer women available for employment directly to jobs. St. Louis has been using block wardens of Civilian Defense Organizations to survey homes in the immediate vicinity of plants with labor demands which cannot be filled from the local office active files. Any person interested in employment with the plant is sent to the USES for referral and placement.

During 1942 and the first two months of 1943, 18 enrollment campaigns for women were conducted of which three were State-wide--Connecticut, Michigan, and Oregon. These campaigns were developed on local initiative and conducted under a variety of procedures. In some cases they were sponsored by Civilian Defense groups, or business associations, with the United States Employment Service cooperating. In other cases, the United States Employment Service assumed responsibility with other groups cooperating. Some areas attempted to register all women, while others restricted registration to those not employed; others further restricted registration to those not employed but available for employment. Akron, Ohio, conducted a household survey by volunteer workers; Connecticut, Michigan, Oregon, and Evansville also used volunteer workers for a door-to-door census.

The results of these campaigns appear to depend primarily on the effective publicity, timing, and careful planning preceding the actual campaign. The full effects of a campaign cannot be measured by local office referrals and placements alone, since publicity of this nature stimulates many women to seek employment directly at the plants.

An example is Detroit, which began its campaign last July. A total of 265,690 registration cards were received and classified. These represented 195,400 women who were not working and 70,200 who were employed. Almost 13,000 new registrations were obtained for full-time work and 4,000 registrations were renewed. Employment Service placements of women from August through December numbered 12,500. The number of women who found employment on their own initiative was far greater. Following the enrollment campaign, the employment of women in manufacturing activities showed spectacular growth. In 185 major manufacturing plants, employment of women increased from 44,000 in August to 107,000 in February.

In Buffalo, 302,500 questionnaires were distributed by mail and about one-third were returned. It was found that 44,400 women were not employed and willing to work and 12,000 women employed in nonwar activities stated their availability for factory work in essential activities. On the basis of these results, a potential supply of over 50,000 women should be available to meet the essential labor demands in this area.

Other campaigns were conducted with little planning and results were disappointing. Profiting by experience with enrollment campaigns held during 1942, the War Manpower Commission has formulated policies and procedures to govern the application of the enrollment of women as a technique for augmenting the local labor supply. Because of the dynamic nature of the labor market, the process of evaluating existing recruitment techniques and studying new devices is a continuous one. Experiments with new techniques are made locally and if they appear to have merit and general applicability, procedures for the use of these techniques in other areas.

With the entrance into the labor market of large numbers of women not customarily employed, the problem of keeping them in the labor market has become quite serious. Recruitment efforts have slight net effect if they do little more than replace women who leave the labor market. Even women without young children have continuing household responsibilities which in combination with full-time employment places a heavy burden on many woman wartime workers. Arrangements are being made all over the country for the adaptation and expansion of schedules of stores and banks adjusted to the needs of war workers. Boston, Albany, Washington, Cleveland, Atlanta, Birmingham, Des Moines, and Minneapolis are among the cities in which department stores and other retail establishments are open one evening a week. In Philadelphia, department stores are open two nights weekly.

Difficulty experienced in marketing for food has led some establishments to develop facilities for the purchase of food within the plant. The Federal Telephone and Radio Company in Newark, New Jersey, has a representative of one of the stores in the community come to the plant every morning, take food orders from the women workers, and bring the food back at the end of the shift. A similar plan is under way at the International Projectors Plant in Long Island. In the Pentagon Building the War Department has opened a shopping center which is a boon for the thousands of women employees who find it impossible to do late afternoon shopping downtown.

The establishment and expansion of child-care facilities to accommodate the needs of employed mothers has facilitated the employment of women in many areas. Although not enough has been done to solve this very real problem, considerable progress has been made. Cleveland is an example of a highly industrialized city which has made substantial progress in meeting the need for services for children of working mothers. In the summer of 1941 a child-care committee was formed whose first objective was to determine the need for child-care. A canvass of existing resources was made. In addition a questionnaire was sent to 300 war production employers to determine the number of women working and the additional number that might be hired. In May 1942 a consultation service was set up. In less than a year this service assisted more than 1,800 mothers and resulted in securing proper care for many of the children of these women. There are now 36 child-care centers capable of caring for 1,568 children. The Federal Works Agency has recently approved a Lanham Act application for 25 nursery school centers and 15 before--and--after school programs. These units are intended to care for 875 preschool children and 900 school age children.

Philadelphia, like a number of other areas, has carefully selected private homes to provide foster child-care for children living too far from other child-care facilities, for children of mothers working irregular hours, and for children under two years of age.

Experience has shown that where household responsibilities cannot be properly adjusted, it is wiser to channel women into part-time employment. Long Beach, California, made special attempts to recruit housewives, students, and older workers for part-time work in stores and hotels. The response was excellent. In Charlotte, North Carolina, merchants are conducting a drive directed entirely towards housewives and wives of service men for employment in local retail trade establishments. Despite these efforts in specific communities, however, inadequate attention to the factors which enable women to take and keep full-time jobs continue to offer a serious impediment to the absorption of this proportion of the labor reserve.

Women who are not acceptable to war production employers, have also been encouraged to take full-time employment in locally needed activities. It is recognized that women are urgently needed to staff these services and that they contribute in equal measure to the war effort by taking a "wartime" job in these fields. However, women who are entering the labor market in response to patriotic rather than financial incentives are frequently reluctant to accept employment in an occupation which to them has no direct connection with war production. To correct this attitude, the Office of War Information in cooperation with the War Manpower Commission is sponsoring a magazine educational campaign for the month of September. This campaign will point out the need for women in nonfactory jobs and highlight the fact that these jobs are also necessary and important in our wartime economy.

Women will remain our largest single reserve. The most readily available of this group have already been drawn in. To recruit the additional women that are needed will require intensive application of the programs and procedures that have been developed. Equally important is the need for keeping in the labor market those that are induced to enter. The provision of community facilities on a much wider basis than has hitherto been done is an immediate and impelling necessity.

Manual of Operations
WAR MANPOWER COMMISSION

May 22, 1943

Title: III
Section: 3-5

DESIGNATION: Regulation No. 5
SUBJECT: Regulation Governing Appeals

Pursuant to the authority vested in me as Chairman of the WME by Exec. Orders Nos. 9139 and 9379, I hereby prescribe the following regulation governing appeals from War Manpower Commission actions:

Sec.
906.1 Who may appeal
906.2 Actions from which workers may appeal
906.3 Actions from which employers may appeal
906.4 Notification of right to appeal
906.5 To whom appeals originally taken.
906.6 Decisions on original appeal
906.7 Hearings before and decisions by Regional ML*WMCommittees
906.8 Appeal to the Chairman of the WMC
906.9 General provisions.

AUTHORITY: secs. 906.1-906.9 incl, issued under Exec. Order No. 9139, 7 F.R 2919, and Exec. Order No. 9279, 7 F.R. 10177.

906.1. Who may appeal. The worker or employer with respect to whom the WMC takes any action described in Secs. 906.2 or 906.3 of this regulation may appeal from such action. Other workers or employers, groups or organizations of workers or employers, and other persons or organizations who claim to be prejudiced by any action taken by the WMC may request a hearing upon such action and such hearing may be afforded in the discretion of the WMC representative to whom the request is directed.

906.2. Actions from which workers may appeal. A worker shall have the right to appeal whenever the WMC:

(a) refuses to refer him to, or to consent to his being hired for, employment in which, under an applicable WMC order, regulation or other direction, he may be hired only upon referral by, or with the consent of, the WMC; or

(b) refuses to issue to him a statement of availability; or

(c) requires or permits his employer to release him under a WMC policy, regulation or other direction; or

(d) determines that he is violating, or has violated any provision of any order, regulation, or other direction of the WMC.

906.3. Actions from which employers may appeal. An employer shall have the right to appeal whenever the WMC:--

(a) refuses to refer to him, or to consent to his hiring, a worker or workers if, under an applicabel WMC order, regulation or other direction, he nay hire such worker or workers only upon referral by, or with the consent of the WMC; or

(b) issues a statement of availability to any of his workers; or

(c) requires him to release, or refuses to permit him to release, any workers; or

(d) requires him to extend the workweek of any of his workers; or

(e) determines that he is violating, or has violated any provisions of any order, regulation, or other direction of the WMC.

906.4. Notification of right to appeal. Any employer or worker who has a right to appe al from an action of the WMC as provided in Secs. 906.2 and 906.3 of this regulation, shall by fully apprised of his appeal rights and upon request, shall be given a written statement setting forth the action in question.

906.5. To whom appeals originally taken.

(a) In areas for which an Area Manpower Director and an Area Mgt-Labor WMCommittee have been appointed, appeals shall be taken to such Committee and hearings shall be afforded before such Committee, or, at the discretion of that Committee, before an Area Appeals Committee composed of an equal number of representatives of management and labor (including representatives of agricultural management and labor when agricultural employment is involved), selected by the Area Manpower Director from a panel chosen by the Area Mgt-Labor MCommittee in appeals hearings and of Area Appeals Committees.

(b) In areas for which an Area Manpower Director and an Area Mgt-Labor MCommitte have not been appointed, appeals shall be taken to, and hearings shall be afforded before, an Area Appeals Committee in the locality composed of an equal number of represen tatives of mgt and labor selected by the Regional Manpower Director from a panel chosen by the Regional Mgt-Labor WManpower Committee. A representative designated by the Regional Manpower Director shall serve as the non-voting chairman of the Area Appeals Committee.

(c) All hearings on original and subsequent appeals shall be conducted informally and in a manner that will best develop the facts.

906.6. Decisions on original appeal.

(a) The decision on an original appeal shall be made by the Area Appeals Committee or the Area Mgt-Labor WMCommittee on the basis of evidence adduced at the hearing. The decision by a majority of the Committee shall be final unless the appellant wishes to appeal further, or unless the Area Manpower Director or other represnetative of the WMC requests that the appeal be heard at the Regional level. In the event of a tie vote, the appeal shall be heard at the Regional level. Members of the Committee may file majority and minority reports.

(b) An Area Mgt-Labor WMCommittee at any time after the assignment of a case to an Area Appeals Committee and prior to the expiration of the appeal period and prior to the filing of a further appeal to the Regional Mgt-Labor WMCommittee, may take jurisdiction of, hear and render a decision, which shall supersede any decision rendered by an Area Appeals Committee, on any case assigned by that Committee to an Area Appeals Comm..

906.7. Hearings before and decisions by Regional Mgt-Labor WMCommittee

(a) Further appeal from decisions on original appeals shall be taken to theappropriate Regional mgt-Labor WMCommittee and hearingsshall be afforded before such Committee, or, at the discretion of that Committee, before a Regional Appeals Committee, composed of equal representatives of mgt and labor selected by the Regional Manpower Director from a panel chosen by the Regional Mgt-Labor WMCommittee. Such Committees may render a decision on the basis of the record in the case, or may schedule a further hearing to be held before the Committee if in the judgment of the Committee such further hearing is necessary. The Regional anpower Director, or his desig nated representative, shall serve as the non-voting chairman of the Regional Mgt-Labor W WMC in appeals hearings and of Regional Appeals Committees. A decision shall be render ed and further appeal permitted as provided in Section 906.6 (a) above.

(b) A Regional Mgt-Labor WMCommittee may at any time after the assingment of a case to a Regional Appeals Committee and prior to the expiration of the appeal period ad and before the Chairman of the War Manpower Commis sion has taken jurisdiction ov over a case, hear and render a decision, which shall supersded any decision rendered by a Regional Appeals Committee, on any case assigned by that Committee to a Regional Appeals Committee.

906.8. Appeal to the Chairman of the War Manpower Commission. At the direction of the Chairman of the WMC he may take jurisdiction over any appeal and render a final decision on that appeal. The Chairman of the WMC shall render a final decision on all cases appealed from a decision of a Regional Appeals Committee or of a Regional Mgt-Labor WMCommittee. The Chairman of the WMC in rendering a decision shall consider the record in the case and recommendations submitted by the Mgt-Labor Policy Committee.

906.9. General Provisions.

(a) Appeal periods. All appeals must be taken within such periods of time (but such period shall be at least three days) following the date of the decision appealed from as the Regional Manpower Director may prescribe. The appeal period for appeals to the Chairman of the WMC shall be the ten day period following the rendition of the decision appealed from.

(b) Notice of hearings and decisions. The appellant shall be given reasonable notice of the time and place of any hearing upon his appeal and shall be promptly apprised of the decision.

(c) Right to representation. Any action which any person or organization may take under this regulation may be taken on his behalf by his duly authorized representative.

(d) Consolidation of appeals. Whenever appropriate for the full and expeditious determination of common questions raised by two or more appeals, the Chairman of the Committee to whom such appeals are taken may consolidate them.

(e) Effect of appeal on action appealed from. Whenever the WMC issues a statement of availability to any worker or permits or requires an employer to release a worker the appeal of the worker or employer, respectively, shall in no way stay the action as to the worker or employer satisfied with the action, but the officer to whom the appeal is taken may direct that subsequent cases involving other workers of the employer and raising identical issues be suspended pending final settlement of such issues. In all other cases the taking of an appeal shall stay the action appealed from, unless the Chairman of the Committee to whom the appeal is taken specifically directs otherwise.

(f) Inapplicability to Selective Service appeals. Nothing in this regulation shall be construed as applicable to action taken under the Selective Service and Training Act of 1940, as amended, or Exec. Order No. 9309, or to transfers between Executive departments or agencies of the Federal Government under Exec. Order No 9243.

(g) War Manpower Commission. The term "War Manpower Commission" includes any officer, employee, agent or agency designated by the WMC.

(h) Modification of other policies. The provisions of any prior War Manpower Commission policy, regulation or other direction, to the extent that they are inconsistent with this regulation, are hereby modified to conform with the provisions of this regulation.

Signed: PAUL V. MCNUTT
Effective date: may 22, 1943

MMF-WMC-WAC

dupe

May 10, 1943

REVIEW OF RECENT TRENDS IN THE EMPLOYMENT OF WOMEN

The impact of the war on the labor market is continuing to leave as one of its outstanding effects the increasing use of women in industry. While the employment of men is declining as they are withdrawn to the armed services, women are being used to replace them and to meet the additional demands of war industry. In March 1943 the employment of women reached an all-time peak of 15.2 million, 1.9 million more than were employed in March a year ago. Employment of women in nonagricultural industry--14.3 million in March 1943--accounted for 1.8 million of the total increase, exactly balancing the loss of men during the period and maintaining the March 1942 level of 42.0 million in nonagricultural employment. This large scale replacement of men by women raised the proportion of women in nonagricultural industry from 30 percent in March 1942 to 34 percent in March 1943. While total male employment declined 5 percent over the year, employment of women went up 14 percent.

These overall increases blanketed a continous movement of women from jobs traditionally performed by them to new jobs in machine shops, aircraft plants, tank factories, and even shipyards. The proportion of women in establishments essential to war production visited by representatives of the Employment Service as part of the ES-270 reporting program has been increasing steadily and rapidly. The ratio of female to total employment in these war industry establishments rose from 15 percent in May 1942 to 25 percent in March 1943.

A study of the trend between May November 1942 in a large number of identical firms engaged in mining and construction revealed that while total employment dropped 1.3 percent in mining and 6.5 percent in construction, employment of women increased by about one-fourth. However, the proportions of women in these industries have remained low, as can be seen in table 1.

The shift in labor force composition has been most marked in the manufacturing industries. Comprising 16 percent of total employment in manufacturing industries as a whole in May 1942, female employment expanded to 27 percent during the 10-month period ending March 1943.

The munitions industries especially have been fertile ground for the growth of female employment. Large and increasing proportions of women have been employed in the production of the lighter ordnance products, rubber products, scientific instruments, industrial electrical equipment, and communication equipment. In the latter industry women constituted more than half the entire labor force in March. Aircraft

Table 1.--Proportion of women employed in selected industries, May 1942 and March 1943

Industry	Proportion of women employed in--	
	May 1942	March 1943
Total, all industries	14.6	25.4
Mining	1.2	1.5
Contract construction	2.3	3.3
Manufacturing	16.0	26.8
Ordnance and accessories	16.3	25.5
Guns	10.1	15.8
Ammunition, except for small arms	25.6	33.4
Tanks	5.0	10.0
Explosives	15.7	17.8
Small-arms ammunition	37.1	44.1
Firearms (caliber .60 and under)	15.3	31.2
Food and kindred products	21.4	32.9
Textile-mill products	44.6	47.8
Apparel and other finished products made from fabrics and similar materials	69.9	77.2
Rubber products	26.9	38.1
Leather and leather products	40.1	47.3
Iron and steel and their products	7.8	13.7
Aircraft and parts	10.5	30.8
Ship and boat building and repairing	2.4	7.6
Electrical equipment for industrial use	24.4	36.4
Communication equipment and related products	40.1	56.4
Machinery (except electrical)	9.4	17.6
Scientific instruments	25.7	43.2

firms, with 11 percent of its workers women in May 1942, absorbed additional women in such proportions as to raise the female ratio to 31 percent by March 1943. Employing smaller proportions of women, the iron and steel and machinery industries nevertheless evidenced substantial increases in the ratio of female employment. One of the last industries to relax hiring specifications to permit acceptance of women was shipbuilding, and now even in this "man's" stronghold the bars are being let down, although cautiously. The record of employment in shipyards reporting shows 2.4 percent to have been women in May a year ago--7.6 percent in March of this year. Some shipyards in areas of extreme labor stringency have far surpassed this average, employing women beyond 15 percent of their total labor force.

The increase in employment of women has been almost universal for industries covered by the Employment Service reporting program, and the rates of increase have been typically more rapid than increases in total employment. In 6,000 manufacturing plants which reported employment figures for both May and November of last year, the overall increase in employment over the 6-month period was 17 percent; employment of women in these same firms rose 52 percent. In these establishments--

Where total employment increased--	Female employment increased at least--
10-20 percent	20 percent
20-30 percent	40 percent
30-40 percent	60 percent

Even sharper increases were reflected by firms in all munitions industries combined, where the increase of 19 percent in total employment was accompanied by a 69 percent rise in the number of women workers. For example--

In--	Total employment rose--	While female employment rose--
Aircraft and parts	35 percent	184 percent
Chemicals and allied products	19 percent	62 percent
Electrical machinery	23 percent	50 percent
Iron and steel and their products	3 percent	36 percent
Machinery (except electrical)	12 percent	60 percent
Nonferrous metals and their products	11 percent	47 percent
Ordnance and accessories	23 percent	56 percent
Rubber products	22 percent	62 percent
Ship and boat building and repairing	43 percent	164 percent

The expansion of female employment extended even to industries in which there was a decline in total employment. Thus--

In--	Total employment declined--	While female employment rose--
Blast furnaces, steel works & rolling mills	2 percent	46 percent
Food and kindred products	8 percent	24 percent
Furniture and finished products	2 percent	33 percent
Leather and leather products	5 percent	4 percent
Paper and allied products	5 percent	15 percent
Textile-mill products	1 percent	5 percent

Part of the story on the expansion in the numbers of women employed is related to occupations. In order to resolve their unfilled labor demands employers have frequently been compelled to hire women for jobs traditionally closed to them. These initial breaches in employer resistance to the hiring of women for occupations customarily performed only by men have been further widened by the experiences of successful performance by the early entrants and further tightening of the labor market. While the acceptance of women is by now means universal, the inertia has been overcome to an encouraging extent. Women are now performing in a multitude of occupations for which they had not formerly been considered suitable, ranging all the way from highly skilled precision work to heavy manual labor. Innovations employers had not considered possible are now being made. Women are working in foundries as coremakers, grinders, welders, crane operators, laborers; in aircraft plants as assemblers, inspectors, riveters, machine operators, mechanics; in shipyards as welders, burners, machine operators, electricians, shipfitters; in lumber mills handling logs; in railroads on loading platforms, in machine shops, and on section gangs; as helpers in all crafts in all industries. In certain of these occupations--as machine operating, assembling and subassembling, inspecting, welding, and riveting--women are now employed in large numbers. In others their use is still quite uncommon; even their limited use in these occupations, however, is suggestive of further developments in response to severe labor shortages.

The integration of the greatly increased numbers of women in industry has been hastened by job-breakdowns which permit the use of many insufficiently skilled or insufficiently experienced women, or which screen out undesirable elements of jobs otherwise suitable. Training programs, especially on-the-job training, have further hastened the process.

It follows from the fact of differential acceptance of women by industry that the industrial composition of an area largely determines the extent of employment of women in that area. However, these differentials have readjusted in the face of manpower stringencies and consequently, acceptance of women workers has been correlated to a large extent with the severity of local labor shortages. This is especially true in view of recent developments which have made in-migration unfeasible both because of the insufficiency of the in-migrant supply and inadequacy of local community facilities for accommodating in-migrants. As local labor needs, hopelessly outstripping normal supply have "put the screws on" an area, a major result has been increased utilization of women.

The tremendous labor demands experienced by Detroit's rapidly expanding war industries created very serious labor supply problems almost from the very beginning of the defense program. To meet the demand employers resorted to large-scale utilization of women workers, with the result that in January 1943 there were 370,000 women in the Detroit area's labor force, an increase of about 150,000 over the June 1940 figure. The major problem has become that of inducing sufficient numbers of women not customarily in the labor market to take employment.

This problem was vigorously attacked last August by conducting an enrollment campaign for women in the area. The growth of female employment since the enrollment campaign has been spectacular. In 185 major manufacturing plants employing about 60 percent of the area's manufacturing workers, employment of women increased from 44,000 in August to 107,000 in February, a gain of 142 percent as compared to a 20 percent gain in total employment. The proportion of women doubled during the 6-month period (9.6 percent of total employment in these firms in August, 19.4 percent in February). Women constituted 98.8 percent of the 13,500 total net increase in employment in these plants during January.

The pressure of labor stringency and Selective Service withdrawals have likewise resulted in large gains in female employment in Baltimore. In 92 identical firms reporting from May to November 1942 there was a 20 percent increase in total employment during the 6-month period, but a 99 percent increase in the employment of women. An intensive woman's recruitment drive inaugurated in September has helped to mobilize the additional womanpower needed to meet Baltimore's war production goals.

The expansion of war industry in the Buffalo-Niagara Falls area has been achieved primarily by the use of women. Female employment in 52 identical firms rose 242 percent between May 1942 and January 1943, whereas total employment in these firms increased only 29 percent. While in May, the proportion rose to 23 percent by January 1943. Because of the necessity of employing increasing numbers of women, an enrollment campaign was conducted in February of this year to draw additional woman into the labor market.

Every shortage area has experienced similar shifts in labor force composition, differing in degree, but following the same general pattern. In areas not suffering the same acuteness of labor shortage the trend is not as marked as in the areas cited. Thus, compared to Baltimore, Buffalo, Detroit, and other areas which have encountered acute shortages, the Chicago labor market area, which has only just begun to swing into large-scale production and large-scale expansion of employment, has to date experienced a relatively small increase in the employment of women. The pattern of change, however, has been the same. With total employment in 464 war production establishments increasing only 3 percent during the last half of 1942, employment of women rose 22 percent. The large proportion of women in these plants in July 1942--27 percent of total employment--rose even further to 32 percent by January 1943. While the increase in female employment has been rather slow, it may be expected that as the new and converted plants in the area get into full-scale production and labor stringencies develop, the rate of increase in the employment of women will be greatly accelerated.

Woman's role in the wartime economy will continue to grow during 1943 as the war production program shifts into higher gear and as more and more men are withdrawn to the armed forces. By December 1943 as high as one-third of the female population 14 years and over--17.4

million women--will be required for the civilian labor force and the armed forces. This means that a net addition to the labor force of close to 2 million women will have been made during 1943. This figure must be regarded as an absolute minimum of requirements for additional women, since it does not take account of the additional entrants who will be needed to replace women withdrawing from the labor market. Of the almost 2 million net anticipated addition, munitions industries alone will absorb 1.3 million women and other essential industries 0.4 million. The expanding horizon of occupations for which women are being accepted and the growing demands for them in all occupations as more and more areas encounter increasingly severe labor shortages make major tasks for 1943 with respect to women those of recruitment and training. These phases of the problem will be discussed in forthcoming issues of The Labor Market.

War Manpower Commission
Bureau of Program Requirements
Labor Market Planning Division

War Manpower
Files

April 1, 1943.

Mrs. Mary Brewster White
Women's Campaigns, Director
War Manpower Commission
1778 Pennsylvania Avenue, N.W.
Washington, D.C.

Dear Mrs. White:

We are attaching a couple of carbons of the copy for the leaflet: "What Job Is Mine on the Victory Line?" , planned to help recruit women workers in critical areas.

While the printer is working on it, Miss Robinson thought you might like to decide on the quantity the War Manpower Commission may wish to use. If your office "rides our requisition," that is, orders the quantity it wants at the same time that our requisition goes in, the Government Printing Office will charge you only cost of paper and printing. If your order goes in later, the regular charge is made.

Sincerely yours,

erb
Encl.

Suzanne A. Hunder

before the middle of next week,

March 1943

PRESENT ORGANIZATION OF IN-PLANT SERVICES

A considerable number of federal agencies are concerned in an advisory or supervisory capacity with problems of industrial safety, health and hygiene. Lack of staff and legal authority, however, limits the amount of plant inspection even in those fields and industries under federal supervision. No federal agency either operates or is responsible for the operation of programs in individual factories. The principle of employer responsibility for these services is a sound one; however, without provision for regular inspection of the factory and without power in most instances of enforcing standards, the employers are left not only with the responsibility for providing these services, but for developing their own standards, and for making their own decision regarding the need for them. (See Table I)

Safety

In the field of safety, the Department of Labor arranges for the inspection of plants falling under the Walsh-Healy Act, primarily through State Departments of Labor. The Department's legal responsibility for safety conditions is limited to these plants; through the National Committee for the Conservation of Manpower, the Department of Labor has made arrangements for occasional visits to a limited number of plants by safety engineers whose services are loaned by private companies. These visits, however, are made only at the request of the plant, and are purely advisory. The procurement agencies are also responsible for safety conditions in plants to which they award contracts, but arrangements for regular inspections have not been made. At the present time, therefore, the large majority of plants are either not inspected at all because they are not prime contractors, or do not fall under the jurisdiction of the Public Contracts Division of the Department of Labor; if they are inspected, enforcement has been minimized by the absence of rule-making authority or adequate personnel in many State Departments of Labor. Other plants are visited and recommendations made, but the federal agencies act in an advisory capacity only and have no authority to enforce the standards recommended. Federal agencies in this field have varying degrees of power, have not yet developed uniform standards nor has any plan been made to coordinate their functions so that maximum use can be made of existing staffs.

Health and Hygiene

Industrial health and hygiene has been less emphasized than safety in those plants coming under the jurisdiction of the Department of Labor. Plans have been made by some of the procurement agencies for the development of industrial health programs and the United States Public Health Service is used on a consultative basis in those states which have industrial Hygiene Departments, but these programs also have been developed independently without uniform minimum standards, and many plants are neither inspected nor given advice in this field.

Eating Facilities

No federal agency has assumed responsibility for the investigation of eating facilities in plants. The Nutrition Division of the Office of Defense Health and Welfare Services makes available to plants, at their request, plans for the provision of cafeterias and of nutrition programs. The Division, however, not only has no authority to require the inclusion of these facilities but has no mechanism through which plants can be visited regularly, nor has it developed general standards for such facilities.

Recreation and Physical Fitness

Both the Recreation Section and the Physical Fitness Division of the Office of Defense Health and Welfare Services assist those industrial plants which request these services in setting up programs. No plan, however, exists for the regular visiting or inspection of plants, nor is there sufficient staff available to bring recommendations to the attention of the management except in isolated instances.

Personal and Information Services

Up to the present time no federal agency has been concerned with the provision of any kind of counseling service in industrial plants. Although many individual plants have recognized the need for these services, no federal standards or recommendations are available to them.

PRESENT ORGANIZATION OF OUT-PLANT SERVICES

There is general recognition of the fact that problems arising in connection with manpower are of a national rather than a local nature. On the other hand a national program in this field cannot be operated except through the individual labor market areas. In consideration of the various aspects of labor utilization this is equally true. Yet an examination of Table II shows that not only are there no federal programs operating on a local level, but that no agency has any supervisory power on a local or state level.

The coordinating responsibility of the Office of Defense Health and Welfare Services does not remedy the lack of supervisory powers in individual agencies since the office does not have any operating responsibility in these areas, nor can it modify the agency program, since under its Executive Order it was given no power of direction over the existing agencies in the fields of health and welfare. As a result agencies which have developed their own programs independently and have operating responsibilities do not feel that they are required to act under the direction of the Office of Defense Health and Welfare Services and question any assumption of authority by a coordinating group.

The result has been the development of uneven programs on local levels in the fields of health, nutrition, education, recreation and day-care, dependent primarily on the ability and interest of the individual community to carry on its own program, rather than on the magnitude of the problem.

Provision of Medical Care

At the present time responsibility for planning for the provision of medical and dental services in industrial areas lies in the Procurement and Assignment Service. This Service through its state and local committees, is attempting to survey needs and with the cooperation of the Public Health Service to make plans for the voluntary transfer of physicians and dentists to areas where the shortages are acute. The United States Public Health Service although used in an advisory capacity to the state and local committees, has no direct authority in this field and cannot use their physicians to substitute for private practitioners.

The Procurement and Assignment Service has stressed the need for local communities to make their own arrangements where possible, and in case federal funds are used, to have these funds administered by state agencies. An analysis of some of the difficulties involved in the present policy and procedures in the Procurement and Assignment Service may explain why so few transfers of physicians have been made:

1. Although the re-location of physicians and dentists must necessarily be considered nationally, there is no mechanism through which this can be so planned.

2. The emphasis on local responsibility and planning for the use of physicians limits the program by the fact that those are the very communities where the over-all shortage cannot be met locally.

3. The placing of responsibility for administration in the state committees rather than in a federal agency makes the transfer of physicians from one state to another impossible, because of such problems as that of state licensure.

4. The lack of funds to reimburse physicians for expenses involved in transfer and the need in some instances for subsidization of physicians in order to reestablish them, make their re-location unfeasible.

Nurses

In January, 1943 a Nursing Unit was established by the War Manpower Commission, Bureau of Placement, in order to assemble data, define plans and outline methods for the equitable distribution of graduate, registered nurses by the military, governmental and essential civilian services. This unit is setting up state and local organizations in the areas of need consisting on a state level of a state nurse coordinator employed by the federal government and a Nursing Advisory Committee of the War Manpower Commission. On a local level, there will be a local nursing committee to be set up as an advisory group to the State Nursing Unit. This program is limited to the distribution of graduate nurses. Training professional nurses is handled by the United States Public Health Service.

Public Health Facilities and Services

Public health activities in war industrial areas have been carried on by the United States Public Health Service through state and local authorities. The Service has made various surveys of need and serves in an advisory capacity to state and local Health Departments. Although it exercises some control over State Departments through the grants it administers, the only method of enforcement of any aspect of the program lies through possible withdrawal of federal funds provided through the Social Security Act. This procedure is obviously not adapted to situations where urgent needs are not being met by local authorities. When need for additional health centers, hospital facilities, sanitary facilities and water supply systems is found and it is determined that the local communities cannot provide them, their construction is recommended by the Public Health Service but the final decision rests with the Federal Works Agency. The difference in interpretation of need between the two agencies is illustrated by the fact that by January, 1943, since the initial appropriation in May of 1941, 417 hospital and health facilities have been recommended whereas construction has actually started or been completed in 106 instances.

Nutrition

The Nutrition Division of the Office of Defense Health and Welfare Services is established to coordinate all nutrition activities of the federal agencies. The Division's primary function has been to prepare educational material for state and local nutrition committees which have been set up by their regional representatives. These are independent committees over which the Nutrition Division has no control. No emphasis has up to the present time been laid on the need for additional eating facilities nor with standards in existing restaurants, and the program has been limited to information to individuals on the types of food which provide adequate nutritional values.

Education

The provision of school facilities in areas of industrial concentration where the population increase has been so great that existing schools and teaching staffs have become inadequate, has been the responsibility of the Federal Works Agency, with the Office of Education certifying the need for additional facilities at the time the local community applies for funds for construction and operations. As in the provision of health facilities, the difference in interpretation between the two agencies can be illustrated by the fact that 571 applications have been recommended by the Office of Education since the initial appropriation, whereas until November, 1942, 283 were either completed or under construction.

Recreation

In the field of recreation the present federal responsibility is divided between two units of the Office of Defense Health and Welfare Services, ~~and the Work Projects Administration Recreation Projects~~ The function of the Division of Physical Fitness, Office of Defense

Health and Welfare Services, is limited to educational and promotional work. The Recreation Section with its staff of regional and field representatives, assists local communities in establishing recreation committees, in coordinating local resources and in developing a community-wide recreation program. Surveys of need are made and in cases where additional facilities are needed which cannot be provided by the community, the local community is assisted in filing an application for a facility to be provided through Lanham Act funds by the Federal Works Agency.

The Recreation Section has no authority itself to provide either continuous leadership or programs, and its responsibility in relation to the provision of buildings is limited to a "certification of need". A result of this divided responsibility between the Federal Works Agency and the Recreation Section is shown in the recent Administrative Order of the Federal Works Administrator, made without consultation with the Recreation Section, stopping all applications for recreation facilities for industrial workers.

Administrative responsibility for recreation programs is not only placed in the community but is dependent entirely on the local interest and capacity. Inadequate programs cannot be revised, nor is there any way to require the inauguration of a program. Since many communities feel that the influx of population is not a local problem but a federal one, their attitude is often negative and the lack of federal funds and the possibility of federal administration prevents the development of any adequate plan.

Since the abolition of the Works Projects Administration, the only possibility of direct operation of recreation programs is through the Federal Works Agency, but no request for leadership, for industrial area programs, through the Lanham Act appropriation has yet (February, 1943) been approved by the Federal Works Agency.

Day-care

The problem of providing facilities and supervision for the care of children of employed women is so closely related to recruitment plans that it was the first problem involving community planning officially recognized by the War Manpower Commission. On August 12, the War Manpower Commission issued a directive to develop the necessary program and assigning to the Office of Defense Health and Welfare Services the responsibility of coordinating all agencies concerned and an appropriation of $400,000 was made to provide funds for the administration of the program.

This program is limited to administrative services and the funds for operation of specific day nurseries and extended school services provided by the Federal Works Agency. Up to the present time, there has been incomplete coordination of those two programs and the establishment of specific facilities has not been integrated with areas of manpower needs. In communities which have not felt they could take action there has been no means to operate a program and in no instance is there any way to require minimum standards.

Personal and Information Services

No federal agency has developed any program to assist workers in orienting themselves to new communities or to obtain necessary information and guidance. The only programs are those developed sporadically in a local basis primarily by private agencies.

TABLE I

PRESENT ORGANIZATION OF PRINCIPAL FEDERAL AGENCIES FOR IN-PLANT SERVICES

Type of Services	Responsibilities of Federal Agencies at Local Level				Responsibilities of Federal Agencies at Federal Level		
	Inspection	Advisory	Supervisory	Coordinating	Advisory	Supervisory	Coordinating
Safety	Div. of Labor Standards(1) Maritime(2) War(2) Navy(2)	U.S. Public Health Service	Div. of Labor Standards(1) Maritime(2) War(2)(3) Navy(2)	None	U.S. Public Health Service	Div. of Labor Standards Maritime War Navy	None
Health and Hygiene	Div. of Labor Standards Maritime War Navy	U.S. Public Health Service	Div. of Labor Standards Maritime War Navy	None	U.S. Public Health Service	Div. of Labor Standards Maritime War Navy	None
Eating Facilities	None	Nutrition Division of ODHWS	None	None	Nutrition Division of ODHWS	None	None
Recreation and Physical Fitness	None	Recreation Sec. ODHWS Physical Fitness Division ODHWS	None	None	Recreation Sec. ODHWS Physical Fitness Division ODHWS	None	None
Personal and Information Services	None	None	None	None	None	None	None

(1) Enforcement powers limited to plants coming under Walsh-Healey Act. Services rendered through State Labor Departments.

(2) Inspection and supervisory powers obtained through contract [illegible].

(3) Five divisions within War Department which are independent [illegible].

TABLE II

PRESENT ORGANIZATION OF PRINCIPAL FEDERAL AGENCIES FOR OUT-PLANT SERVICES

Type of Services	Responsibilities of Federal Agencies at Local Level				Responsibilities of Federal Agencies at Federal Level		
	Operating	Advisory	Supervisory	Coordinating	Advisory	Supervisory	Coordinating
Health and Medical Care	None	U.S.Public Health Service Procurement and Assign.Services MMC	None	None	U.S.Pub.Health Service Procurement and Assign.Service MMC	None	ODHWS
Nutrition	None	None	None	None	Nutrition Division ODHWS	None	ODHWS
Recreation	None	Recreation Section ODHWS	F.W.A.(1) (Lanham Act Funds)	None	Recreation Section Physical Fit. Division	F.W.A.	ODHWS
Education	None	Office of Education	F.W.A. (Lanham Act Funds)	None	Office of Education	F.W.A	ODHWS
Day-Care	None	None	F.W.A. (Lanham Act Funds)	None	Office of Education Children's Bureau	F.W.A.	ODHWS
Personal and Inform. Services	None	None	None	None	None	None	None

1) This authority is limited to approval of specific projects for which funds are requested by and allocated to a community.

March 1943

War Manpower

MANPOWER UTILIZATION PLAN

FOR THE

SYRACUSE AREA

The purpose of the "Manpower Utilization Plan" for the Syracuse area, formulated by the War Manpower Commission and representatives of management, labor and agriculture in said area, constituting the Syracuse Area War Manpower Committee, is to provide voluntary mobilization and utilization of local labor resources, and to promote the orderly recruitment and transfer of labor within said area. The plan shall become effective Monday, March 8, 1943.

1. DEFINITIONS

A. The 'Syracuse Area' is the area comprising the counties of Onondaga, Cayuga, Cortland, Oswego, Jefferson, St. Lawrence and the designated parts of Madison, Lewis and Franklin counties. However, the Area Director, with the approval of the Regional Director and after consultation with the Area War Manpower Committee may alter the territory of the Syracuse area.

B. An "essential activity' is any activity essential to the war effort, including agriculture and other activities necessary for the maintenance of essential war activities and of national safety, health or interest. From time to time, a "List of Essential Activities" will be published by the War Manpower Commission. This list may be modified by the Area Director with the concurrence of the Area War Manpower Committee, and subject to the approval of the Regional Director, for the purpose of adapting it to the requirements of the Syracuse area.

C. An "essential worker" is a worker employed in an essential activity. However, a worker shall be deemed an essential worker for the purposes of this plan during the fifteen-day period following the date he ceases to be employed in an essential activity.

D. "Solicit" (for the purpose of hiring) means any act including any written or oral communication or publication designed or intended to induce any individual to accept employment in any plant, factory or other establishment.

E. The term "War Manpower Commission" means the national body bearing this name or any person or service -- such as the United States Employment Service -- properly authorized and employed to act for it. The War Manpower Commission will be ordinarily designated as "WMC", and the United States Employment Service as "USES".

F. A "certificate of separation" is a written statement given a worker, which statement, in effect, indicates that the individual covered by the statement has been released from his immediately preceding employment and may be hired by another employer.

G. The "Appeals Board" is the Area War Manpower Committee, but may be a sub-committee thereof, appointed for that purpose. Any sub-committee so appointed shall consist of an equal number of representatives of management and of labor, together with the Area Director or his designated representative. Whenever the Area War Manpower Committee acts as an Appeals Board, a quorum shall consist of an equal number of persons representing management and labor, and the Area Director or his designated representative. However, should the Appeals Board be called upon to consider matters affecting agriculture, a representative of agriculture shall sit as a member of the board.

II. RECRUITMENT PLAN

A. No employer, whether or not engaged in an essential activity shall solicit or hire within or outside the Syracuse area, any essential worker except upon presentation by him of a certificate of separation. Similarly, no employer shall solicit or hire an essential worker who is to perform work outside the Syracuse area, unless a certificate of spearation is presented.

B. The type of advertising for workers within the Syracuse area shall be under the supervision of the Area War Manpower Committee. No employer shall advertise for workers within the Syracuse area, unless such advertisement shall contain the following:

"Persons now in war work or essential activities will not be considered."

C. A worker engaged in a non-essential activity may seek employment with or be hired by an employer engaged in an essential activity without presenting a certificate of separation. Whether an activity is essential or non-essential shall be determined by reference to the "List of Essential Activities." Should individual rulings be necessary, they will be made by the USES.

D. A worker who wishes to leave employment on one farm and accept employment on another need not obtain a certificate of separation. However, a worker desiring to leave employment on a farm and accept employment other than on a farm must obtain a certificate of separation.

III. CONTROL OF IN-MIGRATION

A. No employer -- regardless of whether his activities are essential or non-essential -- may hire, re-hire, solicit, or recruit workers outside of the Syracuse area except in accordance with the following procedure:

1. Through an office of the USES, or
2. After clearance and approval by the USES, or
3. In accordance with standards, methods, or conditions established by the War Manpower Commission.

IV. "CERTIFICATE OF SEPARATION"

A. A certificate of separation shall be given an essential worker by his present or last employer if and when:

1. The employer discharges, lays off, or otherwise separates the worker from his employment, or

2. The worker desires to terminate employment for reasons consistent with the provisions of Section V hereof.

B. If an employer has failed or refused to give promptly a certificate of separation to an essential worker, that worker may present his case to the USES; whereupon the USES will investigate and consult with the employer. After this investigation and consultation, the USES may request the employer to furnish a certificate of separation to the worker, and this request must either be complied with, or else the employer shall appeal the case within 24 hours to the Appeals Board. If the employer fails to file his appeal within 24 hours, or if the employer's appeal is denied, the USES shall issue a certificate of separation to the employee in question.

C. After investigation, any office of the USES may furnish directly, a certificate of separation to an individual who has recently moved into the Syracuse area, and who has not been employed within the Syracuse area.

V. CIRCUMSTANCES WARRANTING ISSUANCE OF CERTIFICATES OF SEPARATION

A. A certificate of separation shall be issued to a worker when the circumstances are such that said issuance will be in the best interests of the war effort. Also, a certificate of separation shall be issued in cases where denial would result in undue hardship upon the worker provided issuance will not operate against the bests interests of the war effort.

B. The following circumstances are illustrative of what shall be considered good grounds for the issuance of a certificate of separation:

1. When the worker has been employed for a substantial period at less than full-time.
2. When the worker is competent to perform higher skilled work than his present employer is able or willing to provide.

3. When the distance between the worker's residence and his present place of employment is unreasonably great, considering restrictions on the use of gasoline and tires, and the availability of transportation facilities.

4. When the worker has compelling personal reasons for wishing to change employment.

5. When the worker is employed at wages or under working conditions substantially less favorable than those prevailing in the community for the kind of work on which he is employed.

VI. [illegible]

Any worker or employer or group of workers or employers dissatisfied with any act or failure to act pursuant to this plan may present his or their cases to the [illegible] Manpower Committee, or to the Appeals Board established by said Committee.

VII. [illegible]

All employers and other persons affected by this plan are to cooperate with the [illegible] Manpower Committee in an aggressive program for:

1. Reduction of absenteeism.

2. Full utilization of both in-plant and pre-employment training.

3. Full utilization of women, minority groups, handicapped workers and other groups.

4. Up-grading and job dilution.

5. The utilization of manpower at maximum skills.

VIII. [illegible]

Nothing contained in this plan shall be construed to change, modify or restrict any agreement between any employee or group of employees or their duly [illegible] representatives, and his or their employer.

COOPERATION WITH OTHER AREAS

A. The Area War Manpower Committee will seek to protect all these affected by this plan from practices engaged in by parties located outside the Syracuse area, whenever such practices are inconsistent with the provisions of this plan. For example, the Area War Manpower Committee will seek to have all employment advertisements appearing in the Syracuse area include the following:

"Persons now in war work or essential activities will not be considered."

Furthermore, the solicitation of workers in the Syracuse area by concerns located outside the Syracuse area will be discouraged by the USES, unless otherwise advised by the Area Manpower Committee.

X. AMENDMENT AND TERMINATION

A. This plan may be amended from time to time by the Area War Manpower Committee with the approval of the Regional Director.

B. This plan will terminate automatically 90 days after the cessation of hostilities by the United States of America.

March 1943

III. PROBLEMS RELATING TO HEALTH AND EFFICIENCY OF WORKERS

Concern for the health and efficiency of industrial workers in relation to their maximum productivity necessarily leads to consideration, first of all, of the worker on the job and of the plant conditions affecting his performance, secondly of the worker in relation to the community and an evaluation of his living conditions. A third field in which we have yet not had much experience but will become increasingly important, involves the problems arising in connection with the transfer of workers from their home community into areas of industrial concentration.

A. Plant Facilities and Services

A cursory examination of the conditions in the plant which affect the performance of industrial workers include safety, medical care, eating facilities, recreation and physical fitness, and the individual problems which if not solved result in a decreased level of production, absences and quits.

Safety

Safety appliances and safety education become increasingly important as new machines become scarcer, facilities for repair are decreased and as more and more inexperienced workers enter the labor market. As the manpower shortage increases the new entrants will be not only more inexperienced but will include persons who might well be more susceptible to accidents because of lack of agility; the special strains to which such workers as women and the handicapped may be subject, and the lack of judgment which may well be a characteristic of youth entering the labor market for the first time.

Medical Services

Medical services in connection with industrial plants has long been recognized as an integral part of good management. First aid is, of course, essential in any factory situation. But beyond this, the regular services of an industrial physician and his staff are particularly important during a war period. Pre-employment examinations and medical examinations after illness are of invaluable assistance both in controlling accidents and in increasing production, by discovering and checking occupational diseases and hazards. The addition of many unskilled and inexperienced workers increases accident and illness hazards and the employment of women involves special health problems. The general shortage of physicians in war areas also places the industrial physician in a particularly strategic position to control illnesses which might otherwise spread to the community. Also, war production involves the handling of substances, the effects of which are not too well known, an result in new diseases which could not otherwise be stopped in their inception, and the inevitable increase in the production of such materials as explosives naturally increases the danger of large scale accidents

at which time the absence of the protection of emergency services would result in irretrivable damage.

Eating Facilities

In this generation adequate nutrition has been recognized as equally important to health as medical care. The increased energy, the increased resistance to disease and the actual increase in physical fitness due to diet, is a point which does not need to be labored. The need for eating facilities in or near industrial plants is an inevitable corollary to the need for adequate food. In the present period this need is accentuated because of new entrants into the labor force whose resistance may be lowered by the strains of employment. Distances traveled to the job make the working day longer, and therefore more workers become dependent on plant facilities. The greatly increased population in industrial areas and the over burdening of existing commercial facilities, the lack of other resources, add to this need. Looking ahead even a short period of six months, the increased employment of women and decreased amount of prepared foods will make more difficult than ever home cooking to supply all the foods required by the workers.

Recreation

Recreation has so long been associated in our minds with a concept of frivolity that many do not realize the close correlation of the need for recreation and relaxation to physical fitness and health. Muscular strains resulting from the continuous performance of repetitive operations, nervous tensions resulting from the inevitable speed up, the longer hours, and the complete upheaval and disorganization of normal lives, all require relaxation, both physical and mental. This has been recognized from the beginning of the war program in England, and many methods have been planned to counteract this, including the use of music, entertainments, and many athletic and physical activities. The basic planning for this lies in the community, but the plant must consider its responsibility to the worker while he is on the job, and adequate provision be made for recreational outlets during the lunch hour and often before and after work when transportation arrangements involve periods of waiting or make other locations inaccessible. The plant responsibility is increased in communities where the town is so small that other resources are non-existant, and when large groups of workers are living away from their families so that the contacts made at work are their sole social outlet.

Personal and Information Services

Studies of "industrial fatigue" show high correlation between personal worries and decreased production; analysis of the reasons for quits indicate that more than 33% are due to "family affairs" and "personal reasons"; absence reports show a high percentage of absences because of individual needs. Many workers accept employment readily and sincerely, and do not realize until they are on the job that they cannot continue working without re-planning their personal responsibilities. Many married women with children have

already resigned because they cannot make adequate arrangements for the care of their children. Others discover that home responsibilities require at least one day away from work a week. Many men have already left the shipyards because they cannot find adequate accommodations for their families, because they cannot send their children to school or obtain medical care for their wives. The fact that these problems do often come up on the job, the unfamiliarity of many workers with community resources, and the personal readjustments that many of the new entrants will have to make before working successfully, all emphasize the need for individual services in the plant. This has been found so important in England that the inclusion of trained personnel is required before factories are scheduled under Factory Work Orders. In this country some of the largest and best established plants have always provided this service as an integral part of management. Many new plants have for themselves discovered the needs for this type of service and have attempted to provide for it, without, however, any standards or assistance given from the federal government.

B. Community Facilities and Services

In the previous discussion of the problems affecting the health and efficiency of industrial workers in plants, it was apparent that many of the problems which were encountered in the factory were related to and sometimes due to community conditions. Safety devices are not safeguards against the worker's lack of alertness, medical facilities and examinations are of little value if no attention is paid to the health conditions in the home, cafeterias cannot substitute for the meals the worker eats away from work, physical exercises at the plant do not compensate for the deleterious effects of undesirable or unhealthy commercial amusements in the community.

Housing

The need for housing, the acute shortages in many war industrial areas, the bad conditions of housing in which many of the war workers live, has been made the subject of many publications and has been well stated by the National Housing Agency. Its relation to the labor supply is equally obvious and is already the recognized concern of the War Manpower Commission. In a great many instances, however, recognition of this need is limited to "housing conditions" rather than to "living conditions". Although a worker, of course, needs a place where he can obtain adequate sleep, this is not the only factor which affects his job performance.

Transportation

Transportation is required before he can get to the job and in many communities public transportation facilities are heavily overtaxed or the routes are not planned in relation to new industrial plants. In other instances, there are no public transpor-

tation facilities to industrial plants and workers are dependent on private automobiles the use of which are limited by gasoline rationing and rubber shortages. This situation is aggravated by housing shortages which require workers to live far away from their places of employment and as a result increases the length of their working day from two to three hours.

Health and Medical Care

In his home community the worker has almost always known exactly where to go in case of illness, either receiving medical care through his private physician or through clinics. In areas of industrial concentration, however, the increase of population, coupled with the drain of physicians into the armed services, has made it often impossible to obtain medical care, particularly in the case of the newcomer who is not familiar with the local resources. The need for medical services on the other hand, is increased by the shifts of population to unaccustomed climates and occupations. This shortage of course, is also reflected in the shortage of hospital beds, forcing many workers to be treated at home under inadequate supervision.

The increase in population in small communities where public utilities have never been planned for large concentrations of population and in urban areas where the increased drain on water supply and sewage plants is disproportionate to the existing facilities, makes the hazard to public health more imminent. In one war area for example, there already has been a serious outbreak of spinal meningitis which has spread with shocking rapidity in the areas of the city where families are doubled up because of housing shortages. In other areas local public health officials are already terrified by the dangers of epidemic due to the inadequacy of water supply and sewage disposal, the crowded conditions and the shortage of medical services.

Eating Facilities

The relation of the eating facilities in the industrial plants to the community food resources has already been mentioned. Attention, however, should be called to the lack of adequate restaurants in many of the industrial areas, to the increased difficulties in planning home meals because of food shortages and the reduction in the number of prepared products, of the rising prices which make economical buying more difficult. These changes all require more planning at a time when the workers have the least, and at the same time existing restaurants are the most over-burdened when the greatest demand is made on their services.

Education

The need of school facilities is also directly related to the industrial workers. In many of the war communities the children are unable to attend school because of the lack of facilities, they are put in crowded classes where the dangers of contracting communicable diseases are increased and in other places they have to go long distances to attend school, often crossing dangerous highways and running

other accident risks. The lack of school facilities is equalled in many areas by the lack of teachers, many of whom have gone into war production because of low salaries paid in their profession, others who have been recruited into the armed services. Workers are already leaving war jobs because their children are unable to attend school.

Recreation

Certainly one of the areas of primary concern to the War Manpower Commission is the physical fitness of the industrial workers. This is achieved only if the worker has an opportunity to relax after work, to help guard his health through physical activities, and through recreation which helps relieve nervous tensions. The great increase in absences following the weekend certainly has a direct relation to the type of activities in which the worker has indulged and yet in many instances there is no place available except the corner bar. In one place a dormitory is being constructed for women workers at the present time near a plant located in a rural area where the only restaurant and place of entertainment within a two mile radius is a roadhouse where hard liquor is served. The construction of commercial movie houses has almost completely stopped because of shortage of materials. Many of the forms of amusement to which people are accustomed are similarly limited. Besides this the absence of play areas for the worker's children often directly affects the worker by noises which interfere with his sleeping and indirectly by forcing the children to play in the streets where they encounter undue hazard or in undesirable neighborhoods which may often result in juvenile delinquency.

Day-care

The War Manpower Commission has already recognized the need for day-care facilities in order to make provision for the children of employed women. It is, however, important to emphasize the fact that although this need is increasing, available facilities are becoming more and more limited and the shortage of trained personnel is increasing. The make-shifts that many of the mothers are using increase the health hazards for their children and make no attempt to provide supervision.

Personal and Information Services

Many other problems are involved in the employment of labor reserved and of workers new in the community. Information services are needed in order to direct newcomers to community resources. Problems of readjustment to the new job and to new types of living, many problems which are involved in the employment of women outside their care of their children, such as the provision of laundry facilities, and arrangements for shopping and housekeeping, problems arising through the placement of handicapped persons, all these must be considered as basically related to any wide-scale recruiting and labor utilization program.

C. Problems Involved in the Transfer of Workers

The War Manpower Commission is at the present time contemplating more and more control over the migration of industrial workers. The directive on transportation of workers to non-ferrous metal mines is the initiation of a procedure which in all probability will be increasingly employed. Since this whole concept is so new, the problems involved in this transfer of workers cannot be evaluated on the basis of past experience but they can be planned on the basis of analagous experiences in this country, and of plans developed in other countries who have already transferred hundreds of thousands of workers. Besides the factory and community problems which, of course, become accentuated in a program for large groups up-rooted from their homes, some specialized problems will inevitably arise. Arrangements must be made for reception and referral to housing, informational services must be provided, and the program of financial compensations must be considered which, in dealing with large numbers of workers, will far exceed the transportation allowances already provided to facilitate the movement of non-ferrous metal workers.

Reception and Information Facilities

When large groups of workers are being transferred at the request of the government, it is imperative to assist them at their place of arrival, to guide them to appropriate community resources, to housing for themselves and for their families and to their places of employment. If workers are transferred with their families, plans will often have to be made for their wives and children; if the workers arrive without their families, plans will have to be made so that their living conditions can help balance disorientation of their own lives.

Transportation Allowances

Although it seems wise to adopt a policy of flat transportation allowances to any worker who wishes to migrate, many questions will arise regarding the inclusion of dependents and some provision will have to be made to provide this service, so that federal funds will not be misspent and so that a worker will not feel forced to leave members of his family behind.

Supplemental Allowances

Because of the increased expenses of moving from one household to another various supplemental allowances must be considered such as grants to workers to compensate for the expenses of changing jobs and of maintenance of two households for those who move without their families. If some plan of this sort is not made, the workers who are required to move will be penalized in favor of those who remain at home and the consequent hardships and dissatisfaction would seriously hinder either a voluntary or a compulsory recruitment program. Other types of allowances must also be contemplated, since other needs will arise in a situation where workers are not living with their families, as for example, hospitalization in cases where the living quarters prohibit home care, and in cases of serious emergency the possibility of being returned to the home community.

D. Relationship of Plant and Community Services

It has been shown that the worker's productivity is dependent on many factors in his working and living environment. In relation to a labor supply and utilization program, since the emphasis is laid on the individual as a worker, working conditions are the initial concern. Conditions in the community are of concern only in so far as they relate to the worker's efficiency on the job. Relationships to other persons than the worker are of concern only to the extent that they effect the worker's performance. This does not minimize the importance or relevance of community resources and personal relationships; it merely necessitates the planning of any organization for the administration of these services in such a way that the conditions affecting the individual on and off the job are considered in their appropriate relationship.

It is in fact impossible to separate consideration of problems affecting worker's performance into categories of "plant" and "community". Often the factors which are of the most concern to the plant management, which necessitate the most planning in order to increase production, are those which arise in the community. Surveys have shown that 90% of sickness absences are due to causes arising outside the plant and that the overwhelming majority of workers who are absent because of illness are suffering from respiratory or digestive diseases. It is unnecessary to stress the connection of respiratory infections with poor housing, lack of adequate heating, damp rooms, decreased resistance because of inadequate sleep. Nor is there any question regarding the relation of digestive diseases to increased nervousness, to poorly planned meals, to food of poor quality. A person who is dependent on a corner lunch-counter for all his food not only impairs his efficiency but may seriously jeopardize his health.

Absences because of illness are multiplied by absences for which personal reasons or community problems are directly responsible. The need for women to stay at home to care for their children, to fulfill their household responsibilities, the shortage of physicians and dentists requiring long trips and long waits at doctor's offices, are only a few of the causes. Any plans to reduce the number of absences, therefore, cannot be approached without involving all the aspects of community living.

The extent of turnover in many of the war industries has already been a matter of grave concern to the War Manpower Commission because of its direct relation to production lags, and emphasis has been laid on various expedients and controls so that the percentage may be decreased. It is therefore, very pertinent to note that an analysis of several turnover reports indicates that as high as 50% of the quits are attributed by the workers themselves to community conditions.

Inadequate housing, lack of medical services, no place for the children to attend school, or to play, the dissatisfaction of the family, these and similar reasons force many workers to leave their jobs.

The number of man-hours lost through accidents is extremely important to consider in any plan for the maximum utilization of manpower and an essential part of any plant equipment is the safety devices which help reduce the total. But accidents are not entirely dependent on dangerous machines; estimates show a high percentage of industrial accidents are due to the physical and emotional condition of the worker. This again illustrates the close connection of the environmental conditions with the worker's performance. A woman who is worried about the care of her child will be apt to be careless in the handling of the machinery, a man who has been unable to sleep because of the noise or discomfort of his room, will not be able to pay careful attention to his job, his reactions will be slowed down in cases of emergency.

An analysis of the causes of turnover, absences and accidents demonstrates the importance of conditions arising outside the plant and their effect on the production of the worker. The description on the preceding pages of the in-plant problems shows on the other hand, the need for plant facilities and services, which are essential in order to ensure maximum production. In the worker's environment lie many of the basic causes of decreased productivity; the plant, however, is the place where these causes can be discovered and related to job performance. Any program which considers plant and community separately will fail either in its analysis of the basic causes of reduced productivity or in its attempt to treat these causes. In order to treat a patient a physician must not only know the causes of his ailment but must have access to the patient and know the norm for the individual. Likewise, in attempting to cure the problems which affect productivity not only must there be a thorough knowledge of the basic reasons for the decrease in worker efficiency but plans for treatment must be made at the place where the workers are, and where an accurate determination can be made of the type of adjustment necessary in order to ensure increased productivity.

It is in the plant that many problems can be most easily discovered, where the workers can be educated, where they can be examined, where they can be referred to the appropriate community resources and where the adjustments made can be planned on the basis of plant efficiency. It, therefore, becomes obvious that in a manpower program the plant becomes the nucleus for planning. It must not be assumed, however, that plans made on the basis of the information received from the workers on the job, can be effective without the means of carrying them out in the community. Plant officers may learn, for example, that women are leaving because they cannot make adequate provision for the supervision of their children,

but this knowledge will be of little value unless there are means through which day-care facilities can be provided. An industrial physician may through his examination of employees discover the existence of a communicable disease. If, however, there is no way of segregating the patient from others the diagnosis will not prevent the spread of disease in the community.

In order then to develop an effective program which meets the needs of the workers, a close connection must be established between the plant and the community. The person who is aware of the problems arising in the various industries in a specific area must also assume some responsibility for the provision of the appropriate community services to meet these problems. Any other focus would result in planning which bears little or no relation to the problem of efficient war production.

This does not suggest that the full responsibility for both in-plant and out-plant services can be lodged in one individual. In areas of industrial concentration, the organization and provision of community services for war workers cannot be limited to consideration of the worker apart from his family or his neighborhood. The relationship, however, of the person responsible for securing the needed adjustments in the worker's environment to the one who is responsible for in-plant services must be of such a nature that no plans are made which affect industrial workers off the job without a clearance from the person responsible for the functioning of the workers at work.

War Manpower

March 23, 1943

Mr. James G. Bryant
Regional Chief of Operations
War Manpower Commission
1355 Market Street
San Francisco, California

My dear Mr. Bryant:

It was very nice indeed to get your letter and to know that there is cooperation between our agents and your staff in the Manpower Commission.

I shall be very glad indeed to have Miss Anderson make available to you her reports and information and of course we would appreciate receiving such data as you have in return.

I am very gratified to think there has been such fine and close cooperation between the Manpower Commission and our agents.

Sincerely yours,

Mary Anderson, Director

MA:IS

Copy to M. L. Anderson

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

To—		From—	Re Attached Please—
(2)	Anderson.		Approve
	~~Nienburg.~~		Comment
	Larrabee.		Note
	Benham.		Note and return
	Dern.		Reply
	Erickson.		Draft of reply
	Hyde.		Signature
	~~Manning.~~		Would like to discuss
	Mettert.		File
	Pidgeon.		Date 3/23
	Robinson.		Note:
	Smith, F.		
	Spring.		
	Stitt.		
(3)	Files.		

OPO 16—24460

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

OFFICE OF THE
REGIONAL DIRECTOR

1355 Market Street
San Francisco, California
March 13, 1943

WOMEN'S BUREAU
MAR 19 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Chief of Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

I have not previously written you concerning our gratification at the assignment of Miss Margaret Anderson, of your staff, to this region. We are, however, more than glad at the manner in which the facilities of the Women's Bureau are being placed at the disposal of the War Manpower Commission through Miss Anderson's activities.

Mrs. Anne Treadwell, a member of my staff, has been placed in charge of War Manpower activities relating to the recruitment and induction of women into war industries. Mrs. Treadwell and Miss Anderson have arrived at a very satisfactory basis of operation which will enable our Labor Utilization Division to benefit from Miss Anderson's work.

I am writing at this time particularly to request your authorization of a full interchange of materials between your representative and this office. We will, of course, make available to Miss Anderson any data and reports which are of interest to her, and we should appreciate receiving full report of her activities.

With kindest personal regards,

Sincerely yours,

James G. Bryant
Regional Chief of Operations

FOR VICTORY
BUY
UNITED
STATES
WAR
BONDS
AND
STAMPS

March 23, 1943

Mr. Howard E. Durham
Acting Regional Director
Wage and Hour and Public Contracts Division
785 Market Street
San Francisco, California

Dear Mr. Durham:

It was very nice indeed to get your letter and to know that there is such a fine cooperative relationship existing between our agents and your staff in the Wage and Hour and Public Contracts Division.

I shall be very glad indeed to have Miss Anderson make available to you her reports and information, and of course, we would appreciate receiving such data as you have in return.

I am very gratified to think there has been such close cooperation between the Wage and Hour and Public Contracts Division and our agents.

Sincerely yours,

Mary Anderson, Director

MA:IS

Copy to M. N. Anderson

U. S. DEPARTMENT OF LABOR ---------and PUBLIC CONTRACTS
WAGE AND HOUR DIVISION
785 Market Street
San Francisco, California
March 15, 1943

ADDRESS ALL COMMUNICATIONS TO:
Regional Director

IN REPLY REFER TO:
FILE No.
HED:EF

WOMEN'S BUREAU
MAR 19 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Mr. Ash, who is out of the office for a week or two, intended before he left to write you to ask whether you would authorize Margaret Anderson to let him have copies of her reports on women workers in this Region.

You are aware of the cooperative relationship existing between Miss Anderson and the Wage-Hour people in this Region, and I can assure you that her reports would be put to good use. Mr. Ash has recently designated a woman inspector in each of our Branch Offices to report to Miss Anderson whenever they find anything that would be of interest or assistance to her in her various studies.

It is not necessary for me to add anything about the quality of Miss Anderson's work. The fact that Mr. Ash has seen her reports and is interested in having copies for our use is in itself sufficient tribute to her ability.

Sincerely,

Howard E Durham

Howard E. Durham
Acting Regional Director

March 20, 1943

Miss Hope F. Lewis,
Dy-Dee Wash, Inc.,
8066 Fullerton Avenue,
Detroit, Michigan

Dear Miss Lewis:

This is in reply to your recent letter requesting that diaper laundry services be included in the List of Essential Activities which Miss Mary Anderson, Director of the Women's Bureau has referred to this office.

The War Manpower Commission's Committee on Essential Activities has not included industries primarily local in character, such as diaper laundry services, in its national List of Essential Activities. However, the Committee has excluded the diaper laundry industry from the list of nondeferrable activities recently released except those occupations which have been designated as nondeferrable regardless of the activity in which they may be found.

Because of the local character of the operation of this activity, we have developed procedures for the inclusion of diaper laundry services as locally-needed activities under an area stabilization program, and which have been issued to all regional directors of the War Manpower Commission. Such procedures are applicable in labor market areas that now experience or anticipate a labor shortage.

The War Manpower Commission Area Director for Detroit will be able to supply the details of this procedure. It should go far towards relieving the manpower problems of local activities, such as the diaper laundry service industry, in tight labor market areas.

Sincerely,

Collis Stocking, Associate Director,
Bureau of Program Planning and Review

War Manpower

March 25, 1943.

War Manpower Commission,
O'Sullivan Building,
Room 3002,
Baltimore, Md.

A letter from -

Mrs. M. J. Edwards,
714 N. Port St.,
Baltimore, Md.

who is seeking employment in
a war plant.

War Manpower
Defense

March 15, 1943.

Mr. Glenn E. Brockway
Assistant Director
Bureau of Placements
War Manpower Commission
Washington, D. C.

Dear Mr. Brockway:

I certainly appreciate you sending me the ten copies of "War-Time Employment of Women in the Iron and Steel Industry in Great Britain. We find it a very helpful compilation.

Yours very truly,

Mary Anderson, Director

MA:CGM:cam

file War Manpower

March 15, 1943.

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Washington, D. C.

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Mary Anderson, Director

MA:CGM:cam

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

March 1, 1943

WOMEN'S BUREAU
MAR 10 1943
DEPARTMENT OF LABOR

Miss Mary Anderson
Director, Women's Bureau
Department of Labor
Washington, D. C.

Attention: Lucille Manning

Dear Miss Anderson:

In accordance with your recent conversation with Mr. Karl P. Wirth of this office, we are sending under separate cover to you ten copies of a study recently concluded by this office concerned with the war-time employment of women in the iron and steel industry in Great Britain.

Very sincerely yours,

For the Executive Director

Glenn E. Brockway

Glenn E. Brockway
Assistant Director, Bureau of Placement

Separate cover

FOR VICTORY
BUY
UNITED STATES
WAR
BONDS
AND
STAMPS

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

March 1, 1943

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Very sincerely yours,

For the Executive Director

Glenn E. Brockway

Glenn E. Brockway
Assistant Director, Bureau of Placement

Separate cover

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

War Manpower

March 6, 1943

To: Miss Charlotte Carr
Assistant to the Deputy Chairman
War Manpower Commission

From: Mary Anderson, Director
Women's Bureau

I am referring to you the attached letter which I have received from Hope F. Lewis of the Dy-Dee Wash, Inc., 8066 Fullerton Ave., Detroit, Michigan.

This industry is very important to the working mother. Where there is a housing shortage and additional people cannot be brought in, mothers will have to go to work in order to produce more workers from the existing housing facilities. This industry then becomes all the more important. I should say that it should be declared an essential industry.

6-1842 nobu-st-pd-vp

ROUTE SLIP

(Fold here)

WAR MANPOWER COMMISSION

Date Feb. 20, 1943

To: Miss Bertha Nienburg ~~Women's Bureau~~
US Dept Labor

Remarks:

Does this statement clarify the situation of the WOWs or only add to the confusion ?!

EvBH

From: ~~Eva vB.~~ Hansl

February 19, 1943

MEMORANDUM

To: Mr. Broughton
Mr. McFall
Mrs. White
Mr. Hammond

From: Eva Hansl

Subject: W O W: (Women Ordnance Workers)

Since there seems to be considerable confusion as to the significance of these three initials, I have gathered the following information for us:

A "wow" is a bandanna, red with the flaming bomb insignia, created by the War Department (Ordnance Division) when, in August, 1942, they produced the poster which we have all seen and which was widely reproduced in the press of the country.

WOW, Inc. is an "unofficial" organization of women workers, which started in the Hurley plant in Chicago, at the same time.

The two have no connection with each other.

The bandanna is a "safety hat". The War Dept. (Ordnance Division) has now given the design they created to 12 commercial companies who are producing it in great quantities to sell through any public distribution channels. Some plants are buying them to distribute, free, to their workers. ANYONE OF THE GREAT AMERICAN PUBLIC can buy it and wear it.

WOW, Inc. is a growing organization, with headquarters at 31 N. State Street, Chicago, and an Executive Secretary, Miss Caroline Budinger. Its laudable purpose is to boost morale and develop patriotism, as well as provide "extra-curricular" activities, social and volunteer, war work for women in war plants making ordnance.

However, it has come to my attention, that Labor looks upon it as a potential anti-union force, i.e. that an organization set up to carry on any of the activities of a labor union sets up opposition to attempts at unionization. The Hurley plant is non-union. There are no dues for members of WOW, Inc. The inference that it may be a Company Union may not be beside the mark.

The War Department is giving NO public recognition or official sanction to WOW, Inc.

WOW, Inc., on the other hand, is getting out literature which infers that the U.S. Government is "all for them" which the casual reader might interpret as official backing or that the WOWs are another WAAC. All of which means that it behooves us how we publicise WOW. It might be well to find out what women's unions are doing in the same field as Hurley's WOW, such as International Ladies Garment Workers' Union - Electric, Radio and Machine Workers of America etc.

Files
Comment
no answer
needed.
Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

WOMEN'S BUREAU
FEB 11 1943
DEPARTMENT OF LABOR

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

310 Post Office Building
Bridgeport, Connecticut
February 10, 1943

The Women's Bureau
United States Department of Labor
Washington, D. C.

Gentlemen:

Thank you for sending the booklets regarding the employment of women in industry to our Mr. W. H. Harrison, Field Representative, Apprentice-Training Service, 139 Goffe Street, New Haven, Connecticut.

This material has been very helpful in plants now employing women.

Very truly yours,

Perley M. Hovey

Perley M. Hovey
Sr. Apprenticeship Field Representative
Apprentice-Training Service

PMH:mrd



Files
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

February 11, 1943

Mrs. Rachael Nyswander
Women's Bureau
United States Department of Labor
Fourteenth and Constitution
Washington, D. C.

Dear Mrs. Nyswander:

✓ 2/13/43

If it is available will you send a copy of Miss Erickson's report on women in aircraft production to Miss Celia Grant, 422 Jessamine Street, West Palm Beach, Florida.

I am returning herewith the clippings on women in needlecraft which you were good enough to lend me.

phoned 2/13/43

Thank you again for all your help.

Cordially,

Eva B. Hansl.

Mrs. Eva vB. Hansl
Information Division

Enclosures

3/14



War Manpower

February 16, 1943

Mrs. Mary Brewster White
Manager, Women's Campaigns
Information Service
War Manpower Commission
Washington, D. C.

My dear Mrs. White:

Replying to your letter of February 13 we are glad to cooperate with you in the work-clothes study. We outlined with Miss Macy when she was in our office the time Mrs. Mettert could give you in view of previous speaking and consulting engagements previously made to go to various places, and it was agreed that we would give you two weeks of her time for consultations.

Mrs. Mettert will come to New York to work with Miss Macy at some time on Friday, February 19th (depending on train connections from her last engagement). She will be very glad to give you such consulting services as she can from that time until Tuesday evening the 23rd when her previous commitments make it necessary for her to leave there for her next engagement. She can again return to New York the night of the 25th for further consultations.

Sincerely yours,

Mary Anderson, Director

MAP:ml

DEPARTMENT OF LABOR

Miss Pidgeon:

Miss Anderson says we should say that we cannot give as much as four or six weeks, that we had agreed with Miss Macy that we would give two weeks - other work in the Bureau very pressing.

IHS

No. 203 GPO

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

February 13, 1943

Miss Mary Anderson
Director, Women's Bureau
U.S. Department of Labor
Washington, D.C.

Dear Miss Anderson:

I am delighted to hear from our Consultant, Miss Margaret Macy, that you will loan us Mrs. Margaret Mettert of your staff to help on our comprehensive work-clothes study.

It is highly important that in material which goes out to influence the wholesale market, advertising agencies, and all consumer and trade media, standards set by your office be observed.

We are working very closely with the War Production Board, too, as there is definite indication of elimination of various materials and possible standardization (to some extent, at least), of all women's clothing. Work clothes will, of course, come first.

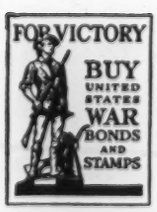
Miss Macy will let me know in a day or two when preliminary arrangements have been made for office space, etc. At that time, we would like very much to have Mrs. Mettert go to New York for a period of at least four weeks. This may have to be extended to six weeks, but we hope not longer than that.

We are most grateful to you for your very helpful co-operation in this respect. I am sure that a planned coordinated market influence of the sort we would be working on together will do much to promote efficiency and safety on the job.

Sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaigns
Information Service



War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Please reply to
751 Williams Street
New London, Connecticut

NATIONAL ROSTER OF
SCIENTIFIC AND SPECIALIZED PERSONNEL

COOPERATING AGENCY
National Resources Planning Board

WOMEN'S BUREAU
FEB 5 1943
DEPARTMENT OF LABOR

February 4, 1943

Miss Bertha Nienberg
Woman's Bureau
Department of Labor
Washington, D. C.

Dear Miss Nienberg:

At the National Roster I am having the assistance of Miss Maybelle Blaeuer, who is working with me on the recruitment of women. It would be a very great help if she could be in touch with one of your staff members so that she would know your releases and publications and in a sense keep our work a little bit coordinated. As you know, I always look to your bureau for guidance and know how much help Miss Blaeuer could have from you.

I am asking her to telephone you and hope that she will then be able to talk with one of your staff members.

With many thanks and best wishes

Sincerely

Chase Going Woodhouse
Consultant

CGW/lje



War Manpower.

February 2, 1043

War Manpower Commission
3rd & Independence Ave., S.W.
Washington, D. C.

Dear Sir:

We note with interest your report on absenteeism. We would appreciate receiving a copy of this survey.

Sincerely yours,

Mary Anderson, Director

mtm:ML

U.S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

July 25, 1942.

Respectfully referred to

War Manpower Commission,
Washington, D. C.

Attached is a copy of a letter received by us. We wrote Miss Gowler:

"I am referring this question of your letter to the War Manpower Commission, as that agency will have specific information on re-training and employment of workers displaced due to conversion of the plant to war production."

The writer has been informed of this reference.

Mary Anderson

(1990) Director.

Files WAW Man Power
Gordon
Returned Robinson

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

Loew's Grand Theatre Building
Peachtree Street
Atlanta, Georgia.

OFFICE OF THE
REGIONAL DIRECTOR

January 27, 1943

Miss Mary V. Robinson, Director
Division of Information
Women's Bureau,
U. S. Department of Labor
Washington, D. C.

Dear Miss Robinson:

Thanks very much for your letter of January 22 and the releases and pamphlets on Negro Women Workers.

I shall get in touch with you again in the near future, and I hope to be able to make more specific requests for additional information relative to this matter. At the present time, in cooperation with Dr. Ira D. Reid, of Atlanta University, I am engaged in a study of the development of employment patterns in southern industry, and such a study involves inquiry into the employment of Negro women. And in connection with this study, we will probably want to secure from the Women's Bureau, if possible, additional information of a background nature.

Thanking you again for sending me the material, I am

Very truly yours,

B. F. Ashe
Regional Director

By: Cy W. Record



War Manpower

January 22, 1943.

Mr. Cy W. Record
President's Committee on Fair Employment
Practice
War Manpower Commission
Room 504, Grand Theater Building
Atlanta, Georgia.

My dear Mr. Record:

Miss Martha Ziegler of our field staff has told us of your request for further data on Negro women workers, including some historical material.

The pamphlets, releases and memoranda enclosed should be of value to you. Very little recent material on Negro women is available but scattered bits are useful for indicating trends, at least. The Negro woman has a more difficult time than the Negro man for she has the double economic handicap of being both a woman and a Negro.

Any way the Women's Bureau can be of assistance please call on us.

Sincerely yours,

OG
erb

Mary V. Robinson, Director
Division of Public Information

Encl.

War Manpower

January 29, 1943.

To: Mr. Leo R. Werts,
Assistant Executive Director,
Field Management,
War Manpower Commission
Washington, D. C.

From: Mary Anderson
Director of Women's Bureau

As requested in your memorandum of January 23, I am supplying the names and addresses of employees who have been unable to get releases from their former employers. They are as follows:

Miss Mary Novak
33 Bevan St.,
Jersey City, N. J.

Miss Mary Sanderson
and
Margaret Sexton
Mary Cucinotto
Muriel Stimmett
Ruth Flesch
231 E. Pearl St.,
Burlington, N. J.

Mrs. Gertrude Cravins,
1812 Jeffries St.,
Dallas, Tex.

Miss Yolanda Pennacchio
309 Delaware Ave.,
Paterson, N. J.

Christman

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

January 23, 1943

WOMEN'S BUREAU
JAN 27 1943
DEPARTMENT OF LABOR

MEMORANDUM

To: Miss Mary Anderson
Director of Women's Bureau
U. S. Department of Labor

From: Leo R. Werts
Assistant Executive Director
Field Management

Reference is made to your memorandum of January 18 addressed to Mr. Byron Mitchell advising the War Manpower Commission of complaints received by your office from three women who have been unable to get release from their former employers.

In order that this office may secure information and take appropriate action regarding the complaints sent to you, it is requested that the names and addresses be furnished.

FOR VICTORY
BUY
UNITED
STATES
WAR
BONDS
AND
STAMPS

W. Mp. Com.

January 21, 1943

To: Regional Representatives

From: Miss Anderson

Re: USES WMC Policy covering Migration of Workers from One Employer to Another in Areas of Manpower Shortage.

The Women's Bureau has received many letters from women workers in recent months stating that the U. S. Employment Service offices in various localities have refused to refer them to new jobs unless they first obtained a "release" from their former employers. Workers who tried to find new employment direct, instead of through USES, were confronted with the same requirement. The result was that, if they gave up a job without first obtaining a release and their former employer then refused to give them a release, they were forced to remain unemployed indefinitely. Also, they were not eligible for unemployment compensation because they had voluntarily left their employment.

Members of Bureau staff recently conferred with officials of USES (in War Manpower Commission) to find out the extent of this practice, and whether anything was being done to correct the resulting injustices.

WMC officials pointed out that the reason for requiring releases is to stop excessive labor turnover and prevent pirating. In some localities, employers have worked out voluntary agreements among themselves to use "quit slips" to control hiring of workers; in other localities, the Regional Manpower Director has sponsored such arrangements. Where the plan was sponsored by USES, workers whose employers refused to issue releases were entitled to an appeal. However, the local Employment offices did not have any special procedure or staff for handling such appeals; the right of appeal was not publicized and usually the worker did not know about it.

WMC is now working out an over-all Employment Stabilization Program, under which a uniform policy on control of hiring will be established. Under the new program, workers covered by the plan will be required to obtain "certificates of Availability" (i.e., releases) from former employers before getting a new job. If a release is refused, the case will be reviewed by the local Employment office, and the worker will be informed in writing of the decision and the fact that he has a right to appeal. 1/

The new procedure, which will be released in about 10 days, will be put in effect in all areas which now have employers' agreements. (A list of these areas will be furnished us by the WMC and will be forwarded as soon as it is received. In other areas, the Regional Manpower Director will decide whether or not the program should be put in operation. Where the program is in effect, the requirement of obtaining releases does not necessarily apply to all workers in the area but only to those the Regional Manpower Director designates.

1/ Further information on the appeal procedure, or other subjects mentioned here, will be sent on request after the new program has been officially released by WMC.

file

War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

WOMEN'S BUREAU
JAN 19 1943
DEPARTMENT OF LABOR

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

January 18, 1943

Dear Miss Anderson:

Thank you for your letter of January 14, inviting me to attend the showing of the British films on women war workers in the Labor Auditorium on Friday afternoon, January 15.

I regret very much that I missed seeing these films which must have been very informative and worthwhile, but because of previous commitments I was unable to attend at that time.

Sincerely,

Edith M. Keyes

Edith M. Keyes,
Assistant to the Chairman

Miss Mary Anderson,
Director,
Women's Bureau,
U. S. Department of Labor,
Washington, D. C.



Files
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
RECEIVED
JAN 16 1943
DEPARTMENT OF LABOR

January 14, 1943

Miss Bertha M. Nienburg
Assistant Director
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Nienburg:

Thank you so much for the helpful information which you gave me the other day, and for your suggestions on a closer working association between the Women's Bureau and the Womanpower Campaigns.

We are sending the list of your field representatives to our regional Information Service Representatives. I am enclosing a list of our representatives so that you may bulletin your field people at the same time, if you wish to.

I am also enclosing a copy of our memorandum. So that the information will be received by the above groups simultaneously, I shall very much appreciate it if you will let me know when you are ready to send this out. I don't want to rush you, but I do feel that we should not delay too long in taking such action.

We are looking forward to working with you and Miss Robinson on many mutual projects. We are delighted to have the benefit of your experience, and also of the splendid material which you have prepared.

Sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaigns
Information Service

CC to Miss Mary Robinson
Director
Information Service



Fed Sec 8225
ext. 666

C M. phoned Mrs White 1/19 that our field offices would be notified this week -

I.S.Operations #

Regional Directors
Attention Information Service
Representatives

January 14, 1943

Edward A. Collier, Assistant Director
Information Service

Regional Representatives of the Women's Bureau, Department of Labor.

Attached is a list of regional representatives of the Women's Bureau of the Department of Labor.

It may be helpful to contact these representatives, as they are constantly doing excellent research work in plants and with various labor groups.

Their experience should be particularly helpful when preparing campaigns to recruit women for war industries.

We are working very closely with the national headquarters of the Women's Bureau through Mrs. Mary Brewster White, Manager of Women's Campaigns of our Information Service.

January 16, 1943

WAR MANPOWER COMMISSION

REGIONAL INFORMATION SERVICE REPRESENTATIVES

Regional Director
War Manpower Commission
10 Post Office Square
Room 321
Boston, Massachusetts

Regional Director,
War Manpower Commission
Attention: Abe L. Savage,
11 West 42nd Street
New York, New York

Regional Director
War Manpower Commission
Attention: W. Oliver Kincannon
1414 Widener Building
Philadelphia, Pa.

Mrs. L. Lamar Matthews
Social Security Board
Arlington Building
1025 Vermont Avenue
Washington, D.C.

Regional Director,
War Manpower Commission,
Attention: P.D. Fahnestock,
521 Union Commerce Building
Euclid Avenue & East Ninth St.
Cleveland, Ohio

Regional Director
War Manpower Commission
Attention: C. John Russell
Bankers Building
105 West Adams Street
Chicago, Illinois

Regional Director,
War Manpower Commission
Attention: Hervey Allen
Grand Theatre Building
Atlanta, Georgia

Regional Director
War Manpower Commission
Attention: Philip Schulte
500 Midland Bank Building
Minneapolis, Minnesota

Regional Director,
War Manpower Commission
Attention: Frank K. Dunn,
414 Dierks Building,
1006 Grand Avenue
Kansas City, Missouri

Regional Director,
War Manpower Commission
Attention: Julian Capers, Jr.,
14th Floor, Petroleum Tower Bldg.,
Dallas, Texas

Regional Director,
War Manpower Commission
Attention: Barron Beshoar,
214 Equitable Building,
Denver, Colorado

Regional Director
War Manpower Commission
Attention Jerry Dunn,
245 Furniture Mart Building,
San Francisco, California

Hugh J. Wade
Territorial Director
Territorial Building
Juneau, Alaska

Newton R. Holcomb
War Manpower Commission, Territorial Director
Post Office Box 3680
South and King Streets
Honolulu, Hawaii

7 les cpy
War Manpower

January 15, 1943

Mr. W. H. Fraysure, State Director
War Manpower Commission
122 Logan Street
Frankfort, Kentucky

My dear Mr. Fraysure:

As you probably know, the Women's Bureau has been working with the Under Secretary of War's Office to bring about the effective employment of women in war industries. Up to the present time our agents have been traveling throughout the country counseling employers where demand was most urgent.

We have been represented on the Labor Supply Committees by local women who have been instrumental in promoting the welfare of women workers in their communities in cooperation with the Women's Bureau.

As more and more women are being employed and the problems are becoming acute, we are assigning our own agents and former representatives on the Labor Supply Committees to specific regions as our Regional Representatives. Miss Elizabeth Magee will serve us in Region V Area with the assistance of Mrs. George T. Settle, in Kentucky.

Mrs. Settle's address is 1603 Kentucky Home Life Bldg., Louisville, Kentucky. Please be free to call on her for any assistance she may render in the woman power problems in your region.

Sincerely yours,

Mary Anderson, Director

IS

WAR MANPOWER COMMISSION
~~FEDERAL SECURITY AGENCY~~
~~SOCIAL SECURITY BOARD~~
UNITED STATES EMPLOYMENT SERVICE

OFFICE OF
THE DIRECTOR FOR
Kentucky

WOMEN'S BUREAU
JAN 25 1943
DEPARTMENT OF LABOR

c/y to Settle
1/25
2045

January
Twenty-Two
1 9 4 3

Miss Mary Anderson, Director
U. S. Department of Labor
Women's Bureau
Washington, D. C.

Dear Miss Anderson:

This will acknowledge receipt of and thank you for your letter of January 15.

We appreciate receiving the information contained in your letter and shall call on Mrs. Settle at such a time as the opportunity presents itself.

If we can be of any service to you please let us know.

Very truly yours,

W. H. Fraysure

W. H. Fraysure, M
Director for Kentucky

WHF:HLM



CROSS REFERENCE SHEET

Name or Subject

War Manpower Com.

File No.

Defense file

Regarding

Date

in re situation of new employees
in Akron O. plant
Jan 15, 1942

SEE

Name or Subject

File No.

Sylvia Maples - - - - 238

File cross reference form under name or subject at top of the sheet and by the latest date of papers. Describe matter for identification purposes. The papers, themselves should be filed under name or subject after "SEE."

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War Manpower

January 18, 1943

MEMORANDUM

To: Mr. Byron Mitchell
Ass't Exec. Director in charge
of Field Management
War Manpower Commission

From: Mary Anderson, Director
Women's Bureau
U. S. Department of Labor

The following are complaints from three women who have been unable to get a release from their former employer. The Employment Service therefore has not tried to place them elsewhere.

Paterson, N. J. Woman worked in novelty sportswear, earning $21 a week. Brother in Service, which increased her home responsibility. Applied at Western Electric and was accepted, but first employer would not release her. New Jersey Unemployment Office said they could not help. New Jersey Mediation gave same answer.

Dallas, Texas. Husband in Service, supporting three children. Got job in American Aviation Co. 15 miles from her home. Could get job closer to her home but Company would not release her, said it was a law.

Burlington, N. J. Letter omits name of Company. Was advised by her doctor to change her job because causing nervous condition. Company will not release her. Unemployment Office gave no help.

I wonder if there is anything that you can do about it?

MA:IS

War Manpower

January 11, 1943

Mrs. Anna M. Rosenberg
Regional Director
War Manpower Commission
Box 710
Albany, New York

Dear Mrs. Rosenberg:

We note with interest the report of your investigation of absenteeism in the New York region and would appreciate having the detailed study. The report is of special interest at this time when women are being employed in many industries for the first time.

Sincerely yours,

Mary Anderson, Director

MTM:ml

January 9, 1943

Mr. Robert C. Goodwin, Regional Director
War Manpower Commission
521 Union Commerce Building
Cleveland, Ohio

My dear Mr. Goodwin:

Your memorandum of December 29 to Mr. Flemming, Acting Executive Director of the War Manpower Commission, has been referred to the Women's Bureau.

We have no report as yet on the employment of women in shipyards, as we have just begun that investigation. I am sending you, however, a copy of a report prepared by Mrs. Elinore Herrick of the Todd Shipyards, for a conference in which, as you will see from the face sheet, the Women's Bureau participated. I can send you only one copy, however, as I have been unable to secure additional copies from Mrs. Herrick.

I am also sending you a list of occupations in which women are already employed in the shipbuilding and allied industries in England, (August 1942).

There is an Employment Service Report (War Manpower Commission) entitled "Industrial Manning Table for Shipbuilding," prepared by the Occupational Analysis Section, Employment Service Division, October 1942. If you do not already have it, I am sure you can secure a copy from the Employment Service in the Manpower Commission.

With best wishes,

Sincerely yours,

Mary Anderson, Director

MA:IS

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

OFFICE OF THE
REGIONAL DIRECTOR

521 Union Commerce Bldg.
Cleveland, Ohio

December 29, 1942

MEMORANDUM

To: Mr. Arthur S. Flemming
Acting Executive Director

From: Robert C. Goodwin
Regional Director

RCG

WOMEN'S BUREAU
JAN 7 - 1943
DEPARTMENT OF LABOR

Subject: Employment of Women in Shipyards

We would appreciate your sending us 5 copies of "Employment of Women in Shipyards" as we will need them for operations in this region.

FOR VICTORY
BUY
UNITED
STATES
WAR
BONDS
AND
STAMPS

521 Union Commerce Bldg.
Cleveland, Ohio

December 29, 1942

MEMORANDUM

To: Mr. Arthur S. Flemming
Acting Executive Director

From: Robert C. Goodwin
Regional Director

Subject: Employment of Women in Shipyards

We would appreciate your sending us 5 copies of "Employment of Women in Shipyards" as we will need them for operations in this region.

War Manpower

Office for Emergency Management
WAR MANPOWER COMMISSION
~~[illegible]~~
~~[illegible]~~
UNITED STATES EMPLOYMENT SERVICE

15020 Woodward Avenue
Detroit, Michigan

OFFICE OF
THE DIRECTOR FOR
Michigan

WOMEN'S BUREAU
JAN 11 1943
DEPARTMENT OF LABOR

January 8, 1943

Miss Bertha M. Nienburg,
Assistant Director, Women's Bureau,
United States Department of Labor,
Washington, D. C.

Dear Miss Nienburg,

In accordance with your request of December 12, we shall be glad to cooperate in your program by making our ES-270 data available to Mrs. Lowrie.

The Manning table technique is just being started in Michigan and but few records of this type are currently available. Mrs. Lowrie will be given access to this source of information as it becomes available.

Yours very truly,

John L. Craig

John L. Craig
Director for Michigan PLS

JLC:GAT:tk

Copy sent to Mrs. Lowrie



DESIGNATION: Policy
SUBJECT: Women in Industry

Amendments to Policy on Employment in Industry of Women with Young Children

By virtue of the authority vested in me as Chairman of the War Manpower Commission by Executive Orders No. 9139 and 9279, the "Policy on Employment in Industry of Women with Young Children" approved by the War Manpower Commission on July 29, 1942, is hereby amended to read as follows:

"The expansion of the war production program, as well as the increasing requirements of our armed forces, necessitates the maximum utilization of our labor resources. In many areas the lack of adequate housing and transportation facilities compels full use of the local labor supply. These considerations make it necessary to employ large numbers of women in gainful occupations useful to the war effort. Appropriate measures have been and are being taken to provide for the recruitment and training of additional women. Prospective war production schedules indicate that such measures must be considerably expanded and intensified. In carrying out the Nation's program for the utilization of women workers, it is important that to the maximum extent, normal family life be preserved and maintained.

"To promote that end, and to promote the effective mobilization and maximum utilization of the Nation's manpower in the prosecution of the war, the War Manpower Commission hereby declares the following basic policies:

"I. The first responsibility of women with young children, in war as in peace is to give suitable care in their own homes to their children.

"II. In order that established family life may not be unnecessarily disrupted, special efforts to secure the employment in industry of women with young children should be deferred until full use has been made of all other sources of labor supply.

"III. Barriers against the employment of women with young children should not be set up by employers. The decision as to gainful employment should in all cases be an individual decision made by the woman herself in the light of the particular conditions prevailing in her home.

"IV. Whenever it is found that women with young children are gainfully employed in essential activities, or that the labor requirements of essential activities have not been met after the exhaustion of all other sources of labor supply and that to meet such requirements, women with young children must be recruited, it is essential that:

"(a) Such women be employed at such hours, on such shifts or on such part-time schedules as will cause the least disruption in their family life; and

"(b) If any such women are unable to arrange for the satisfactory care of their children at home during their working hours, adequate facilities be provided for the care of their children during working hours. Such facilities should be developed as community projects and not under the auspices of individual employers or employer groups."

Approved: [signature] Chairman
Effective date: January 13, 1943
Original filed in office of the Executive Director

Gen. Files

Manpower

January 8, 1943

Mr. Dillard Lasseter, Regional Director
War Manpower Commission
Room 405 Arlington Hotel Building
1025 Vermont Avenue, N. W.
Washington, District of Columbia

My dear Mr. Lasseter:

As you probably know, the Women's Bureau has been working with the Under Secretary of War's Office to bring about the effective employment of women in war industries. Up to the present time our agents have been traveling about counseling employers where demand was most urgent. As more and more women are being employed, it seems advisable to station agents in the regions. For this purpose we are assigning Miss Caroline Manning assisted by Mrs. Carrie Hager to Region IV as covered by the War Manpower Commission.

While a definite program of work is outlined for Miss Manning and Mrs. Hager, please be free to call on them for any assistance they may render to you in woman power problems in your region. Miss Manning will call on you within a few days.

Sincerely yours,

Mary Anderson, Director

Copy given to Miss Manning

BMN:LW

Office for Emergency Management
WAR MANPOWER COMMISSION
Washington, D.C.

Jan. 9, 1943.

Chairman
PAUL V. McNUTT
Federal Security Administrator

MEMORANDUM

To: The Chairman
Through the Executive Director

From: Glenn E. Brockway
Bureau of Placement

Subject: Policies Governing Conduct of Women's Enrollment Campaigns as Part of the Program for Accelerating the Employment of Women

Your letter of Nov. 7th to the President concerned your previous discussion as to the desirability of a general registration of women at this time, you said:

> "As I indicated to you, I think it is very necessary that any program for the accelerated use of women, to meet the labor demands of war production and essential civilian industry, should be part of an overall plan for the most effective utilization of the labor reserve. My recommendation is to concentrate first on critical areas where the need for women has been definitely established and plans made for their absorption in war industry and essential civilian employment. This means, in effect, that plans for the registration of women in a critical area would be a part of a program developed by the War Manpower Commission for designated critical areas."

While discussions of national registration of women, as well as national service legislation, have continued, local campaigns to mobilize and register all women in the area have continued to increase. These have been conducted under various auspices, sometimes with only the most nominal participation by the War Manpower Commission. None of them have been conducted as an integral part of an overall plan for the utilization of local labor, nor have they been adequately related to other aspects of the program of the War Manpower Commission. Heretofore, such mobilization or registration drives have not been under the effective control of regional or local War Manpower Commission administrators.

The Bureau of Placement, in consultation with other offices of the War Manpower Commission, the Office of Defense Health and Welfare Services, and other Federal agencies, has developed a program for the conduct of enrollment campaigns.

The following basic policies which shall govern comapigns to enroll women for wartime employment, are quoted below and submitted for your approval:

"A. A compaign for the enrollment of women shall be one of the several integral parts of the War Manpower Program to utilize local labor reserves. Other parts of the program which shall be conducted prior to, or simultaneously with the enrollment of women are directed to:

1. Controlling importation of workers from outside the community;
2. Preventing piracy;
3. Effecting the transfer of workers from less essential activities;
4. Full use of persons presently unemployed and seeking work, including women, minority groups, aliens, and physically handicapped.

(See Manual for Area Directors of the War Manpower Commission for information concerning parts of the Manpower program mentioned above.)

B. An enrollment campaign shall be conducted only if the following obtain:

1. Information is provided by employers showing the number of women who will be needed, the jobs for which they will be hired, approximate shcedule for their employment, and the extent of pre-employment training required.
2. Employer committments to hire women recruited by means of the enrollment drive have been obtained which whil insure that a substantial number of women will be placed immedia tely as a result of the enrollment and that schedules for their future employment will be carried out.

3. The jobs which are available cannot be filled by the following means:

   a. Referral of women, older workers, physcially handicapped, minority groups, and aliens who are unemployed and seeking work.

   b. Transfer of workers from less essential employment, making full use of the occupational questionnaires for this purpose.

   c. Full use of intensive recruitment methods.

4. There is evidence of a sufficient local reservoir of women who can enter the labor market to justify an enrollment cam paign.

5. Management and labor support the War Manpower Commission policy on recruitment, training and employment of women.

C. The Chairman of the War Manpower Commission delegates to the Regional Directors the authority to approve enrollment campaigns, within the framework of the policies and standards of the War Manpower Commission governing Women's Enrollment Campaigns.

D. The Regional Directors are authorized to delegate to members of their staffs the authority granted in pafagraph C.

E. Support and cooperation of approved community groups and agencies shall be secured upon initiation of the program but control of the operations of the program shall be retained by the War Manpower Commission and its loval USES offices.

F. Placements made as a result of the enrollment shall be made thru the USES by means of individual referrals or positive recruitment (pooled interviews), or thru such other means as may be authorized under an employment stabilization plan operative in the area."

The proposed instructions to the field, on the conduct of campaigns will also include the following statements:

"Definitions

As used in this program the term "intensive recruitment" and "Campaigns for the Enrollment of Women" are defined as follows:

1. Intensive recruitment - the full use of the usual recruitment devices, such as newspaper and radio appeal, cooperation of community groups in informing local inhabitants of the need for workers, etc.

2. Campaign for the Enrollment of Women - house-to-house distribution of a form for the purpose of securing within a specified geographic area from all women over a specified age, information on experience, training and availability for employment, such facts to be used as a basis for call-in and referral to training or employment.

Campaigns to enroll women are costly and have far-reaching public relations effects; therefore before engaging in one, every effort must be made (1) to determine that it represents the best solution of the manpower problem (2) to time it correctly and (3) to conduct it with full community participation and effective use of all community information facilities.

As pointed out later in this bulletin intensive recruitment should always precede a campaign for enrollment and if successful in bringing a sufficient number of women into the labor market, might postpone or eliminate the necessity for an enrollment."

The proposed program was considered and approved by the Women's Advisory Committee at its meeting on Dec. 3, 1942. Comments from Regional Directors of the WMC and State Directors of the USES support the proposal. The proposed program and governing policies were reviewed at a meeting called by the Executive Director on Jan. 1, 1943. The meeting included the Chiefs and staff of the Bureaus and services concerned with the program. Their suggestions are incorporated in the submittal of this statement to you.

Your approval of the governing policies is requested in order that detailed operating instructions on the conduct of enrollment campaigns, based on these policies, may be issued to the field staff of the WMC. We hope that it will be possible to report the action which has been taken to the Women's Advisory Committee at its next meeting on Jan.13,'43.

GLENN E. BROCKWAY

Glenn E. Brockway
Bureau of Placement.

(signed) Approved 1-13-43
PAUL V. MCNUTT

Manpower

January 7, 1943

To: Mr. Fowler Harper, Deputy Chairman
War Manpower Commission

From: Mary Anderson, Director
Women's Bureau

The Department of Labor and Industry of Pennsylvania has protested to me about the speech of Mr. Louis B. F. Raycroft, regional director of the War Manpower Commission, before the interstate conference on "Youth and the Manpower Problem," in the Board of Education Building, Philadelphia.

Mr. Raycroft was reported to have said that laws and regulations in Pennsylvania, New Jersey, Delaware and Maryland should be modified to permit women and minors of 16 and older to work the same day-and-night jobs and shifts as men in industry essential to the war effort.

The provision of the Walsh-Healey Act prohibiting the employment of girls under 18 by companies holding Government contracts has been modified from time to time. All of these rulings, however, prohibit the employment of girls in hazardous industries and safeguard their employment in other types of occupations by carefully drawn rules and regulations. We have not given any permission to employ girls of 16-18 on the graveyard shift, as that is not a proper time for such young people to be working.

Mr. Raycroft in his speech referred to the State laws of Pennsylvania, New Jersey, Delaware and Maryland that regulate the employment of minors at night. Maryland has no such law. It is the general policy of the States that have,not to grant exemptions for minors under 18 years of age. Delaware prohibits the employment of females 16 years of age and over between 10 p.m. and 6 a.m. The New Jersey law prohibits the employment of minors from 16-18 between 10 p.m. and 6 a.m. (females over 18 may not be employed from 12 midnight to 7 a.m. without a special permit from the Labor Commissioner.) The Pennsylvania law prohibits the employment of females 16 years of age and under 21 between 9 p.m. and 6 a.m. (Women 21 years and over may not be employed between 12 p.m. and 6 a.m. without a permit from the Labor Commissioner.)

I know that the War Manpower Commission is in full accord with the Department of Labor on State as well as Federal labor standards. We in the Department of Labor are cooperating in every way we can to speed up production. We realize, however, that the maintenance of labor standards is essential if maximum production

is to be sustained over a long period of time. I am sure that you will agree with me that the protection of the health of young workers is most important and that everything must be done to safeguard them against unwholesome working conditions.

MA:IS

January 7, 1943

Mrs. Mary Rice Morrow, Director
Bureau of Women and Children
Department of Labor and Industry
Harrisburg, Pennsylvania

Dear Mrs. Morrow:

Enclosed you will find a copy of a memorandum that I wrote to Fowler Harper of The War Manpower Commission here in Washington does not stand with Mr. Raycroft in his suggestions. The Secretary is sending a memorandum to Mr. McNutt in regard to this matter.

Sincerely yours,

Mary Anderson, Director

MA:IS

WMC ASKS CHANGE IN WORK-LAWS

Wants 4 States in this Area to Open War Jobs to Women, Minors, 16

Laws and regulations in Pennsylvania, New Jersey, Delaware and Maryland should be modified to permit women and minors of 16 and older to work the same day-and-night jobs and shifts as men in industry essential to the war effort, Louis B. F. Raycroft, regional director of the War Manpower Commission, said today.

His recommendation, with a reservation that such jobs should not constitute a serious health or safety hazard, was made in a speech prepared for the opening session of a two-day interstate conference on "Youth and the Manpower Problem" in the Board of Education building.

State officials, labor representatives and representatives of industrial and welfare organizations are attending. Raycroft urged them to help modify laws and channel all available school and college youth into agriculture, production and processing.

Women and Youth Needed

He said that his proposal was not inconsistent with the general policy enunciated by war agencies against "widespread" revision of State labor laws. It applied, he said, to industrial areas where the manpower pinch was being felt so strongly that women and youth were essential to production and where the war effort should be impeded if radical changes in shifts and hours were forced upon plants already taxed to meet schedules.

"There is a great need," Raycroft said, "for bringing the laws and industrial regulations of Pennsylvania, New Jersey, Delaware and Maryland, as they relate to employment of women and minors, into uniformity on the most practical plan.

"Women and minors above the age of 16 should be permitted to work the same shifts and hour arrangements as men. This is imperative for the reason that youth and women are now such vital factors in war production. Management cannot maintain production at the necessary rate unless greater freedom is given, for the duration only, in shifting arrangements

(Continued on Page Six, Column One)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF LABOR AND INDUSTRY
BUREAU OF HOURS AND MINIMUM WAGES
261 NORTH BROAD STREET
PHILADELPHIA

January 6,1943

WOMEN'S BUREAU
DEPARTMENT OF LABOR

y Anderson, Director
f Women and Children
nt of Labor
on, D. C.

s Anderson:

At the request of Mrs. Morrow I am

ng a clipping which appeared in the Evening Bulletin

by Mr. Raycroft.

Mrs. Morrow is now in Philadelphia but

in Harrisburg, Friday January 8 and she would appre-

your comments on this article.

I am taking this opportunity to extend

by best wishes.

Sincerely,

Francis F. Welzel.

F. H. Welzel, Director

WMC ASKS CHANGE IN WAR LAWS

(Continued from the First Page)

for women and minors in line with those of men.

Must Prevent Abuses

"We must, however, have safeguards to prevent the abuse of suspended laws and regulations. We must also guard against indiscriminate retreat from established standards. We must see that essentially to the war effort is the criterion to be used in exercising the wartime permission to waive established precautionary and protective rules.

"I ask that it be noted carefully that I advocate longer hours when necessary and free shift arrangements, including night work, only as a wartime measure. This has nothing to do with wage rates or overtime, or the 40-hour week. We believe in equal pay for equal work, whether performed by man, woman or child."

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF LABOR AND INDUSTRY
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F. H. Welzel, Director

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF LABOR AND INDUSTRY
BUREAU OF HOURS AND MINIMUM WAGES
261 NORTH BROAD STREET
PHILADELPHIA

January 6,1943

WOMEN'S BUREAU
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Bureau of Women and Children
Department of Labor
Washington, D. C.

Dear Miss Anderson:

At the request of Mrs. Morrow I am enclosing a clipping which appeared in the Evening Bulletin and is by Mr. Raycroft.

Mrs. Morrow is now in Philadelphia but will be in Harrisburg, Friday January 8 and she would appreciate your comments on this article.

I am taking this opportunity to extend to you by best wishes.

Sincerely,

Francis H Welzel.

F. H. Welzel, Director

War Manpower

January 5, 1943

Mr. Edward McDonald, Regional Director
War Manpower Commission
Dierke Building
10th & Grand Streets
Kansas City, Missouri

My dear Mr. McDonald:

I expect to leave Washington Thursday night for Wichita but will stop in Kansas City enroute. It was not possible to get a reservation until Thursday so will be in the office Saturday morning.

Mr. Wilson and Mr. Cesar were out of town when I called before leaving for Washington but I talked to Mr. Cole. He suggested that I stop to see them before going on to Wichita.

Sincerely yours,

EIF:KMG

Elsie I. Wolfe

Miss Anderson

Files
Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

January 5, 1943

Mrs. Nyswander
Women's Bureau
Department of Labor
Washington, D.C.

Dear Mrs. Nyswander:

Thank you very much for the very comprehensive and helpful material on the employment of women in war production industries. I shall very much appreciate receiving the bulletins, and copies of Miss Anderson's speeches, as they are issued.

Members of Information Service have been so impressed with the value of your material, they have practically depleted my supply. May I, therefore, ask you to send me, at your convenience, another set, which I hope to be able to keep for my own use.

Again, thanks,

Sincerely yours,

Mary Brewster White

Mary Brewster White
Manager, Women's Campaign
Information Service



CONFERENCE ON THE TRAINING OF INDUSTRIAL WOMEN WORKERS
Manpower Commission, Bureau of Training, Dr. W. W. Charters
January 2, 1943

Persons attending:

Dr. W. W. Charters - Bureau of Training, Manpower Commission
Dr. Jaqua, Special Technical Division, Manpower Commission
Louise Stanley - Bureau of Home Economics, Department of Agriculture
Mr. C. R. Dooley) Training Within Industry
Mr. Dietz)
Miss Moore- Office of Education
Miss Lane - National Youth Administration
Helen Ringy - Manpower Commission
Marian Mel - Labor Standards
Thelma McKelwey - Manpower Commission
Miss Anderson) Women's Bureau
Louise Stitt)

Purpose of the meeting:

Dr. Charters explained that he had called the group together to discuss the problems of training women with which the Bureau of Training of the Manpower Commission could help.

Work that Needs to be Done:

As a result of the discussion Dr. Charters outlined the problem as follows:

1. Orientation of women workers to the job.

a. In training schools.

(1) Office of Education.
Miss Moore explained that in many of the bulletins and pamphlets issued by the Office of Education directions to the instructors about orientating women to the jobs are contained. Attempts are made in the schools to familiarize workers with the "smells and sounds of the factory"

Dr. Charters asked Miss Moore if it would be possible for her to assemble all of this material in one bulletin. Miss Moore agreed to do this.

(2) National Youth Administration.
Miss Lane said that her organization has worked out basic procedure for orientating young workers to their jobs.

b. In the factory.

Dr. Charters said that he thought the Manpower Commission should prepare a pamphlet containing examples of good induction policy now in operation in the various plants. These examples should explain what the plant does during the first week of employment to make the women feel at home. The North American Company, Douglas Aircraft and Todd Shipbuilding Corporations were cited as examples of plants that have done an excellent job of inducting women into the plant life.

Training within the Industry Bulletin No. 8, "Introducing the New Employee to the Job" was distributed to the persons present.

2. Training of foreman in the proper handling of women workers.

Dr. Charters stated that he thought that the Manpower Commission should prepare a pamphlet on this subject. This pamphlet should consist of examples of foreman's policy in handling women workers that have proved successful. It was also agreed that women should be trained for foreman positions.

Training within Industry Bulletin No. 7 - Increasing War Production through Employment of Women - was distributed to the group.

3. Articles to be prepared.

Dr. Charters said that he thought a series of articles should be prepared explaining how women may be successfully used in industry. The purpose would be to offset the attitude toward the employment of women that is to be found in many trade journals. Many of the articles in these journals perpetuate the assumptions that women work better under men supervisors than under women, or that women cannot be used for skilled jobs, etc. Such traditional attitudes should be refuted by factual material presented in a series of official articles. Such articles should be widely distributed to foremen and trade journals, etc.

It was also thought desirable to prepare in popular form the discriptions of the unusual jobs that women are successfully filling. Miss Ringly said that Mr. Shartle had a great deal of interesting information concerning such jobs.

During the discussion Mr. Dooley and Mr. Dietz explained that their organization does not attempt to touch on employers' solutions of specific problems. They give instructions as to methods of solving problems and leave to employers the job of applying these methods to individual personnel and training problems as they arise in their plants. The Training Within Industry Section has been giving training in job relations. Supervisors are

Since the Jan. 2, 1943 meeting Miss Anderson and Mrs. Beyer saw Mr. Charters and he said his division is not planning to issue bulletins relating to women.

brought together and the case method is used in the discussion. Each supervisor outlines a particular problem which he has had in handling some worker or group of workers and together the group discusses the proper method of handling such a case. From this discussion they try to work out methods. The solution recommended is applied and follow-up work is done to see whether or not the solution has been successful. Training In Industry has prepared small cards for supervisors and foremen entitled "How to Instruct."

It was explained that the list of occupations approved by the State Administrative Council for which Federal funds may be used for vocational training is today very elastic. At the present time local officers may authorize training for any occupation which investigation has shown there is a local need for workers.

The reluctance of women to enter vocational training classes because they are not paid while in training has been largely overcome through the policy of employers placing trainees on their payrolls at the outset of the training period. When the training has been completed, these workers immediately take positions in the plants that have paid their wages during the apprenticeship period.

Miss McKelvey stated that many war department contracts with primary contractors contain special clauses concerning the employment of women.

Miss Anderson

War Manpower

January 21, 1943

To: Regional Representatives

From: Miss Anderson

Re: USES WMC Policy covering Migration of Workers from One Employer to Another in Areas of Manpower Shortage.

The Women's Bureau has received many letters from women workers in recent months stating that the U. S. Employment Service offices in various localities have refused to refer them to new jobs unless they first obtained a "release" from their former employers. Workers who tried to find new employment direct, instead of through USES, were confronted with the same requirement. The result was that, if they gave up a job without first obtaining a release and their former employer then refused to give them a release, they were forced to remain unemployed indefinitely. Also, they were not eligible for unemployment compensation because they had voluntarily left their employment.

Members of Bureau staff recently conferred with officials of USES (in War Manpower Commission) to find out the extent of this practice, and whether anything was being done to correct the resulting injustices.

WMC officials pointed out that the reason for requiring releases is to stop excessive labor turnover and prevent pirating. In some localities, employers have worked out voluntary agreements among themselves to use "quit slips" to control hiring of workers; in other localities, the Regional Manpower Director has sponsored such arrangements. Where the plan was sponsored by USES, workers whose employers refused to issue releases were entitled to an appeal. However, the local Employment offices did not have any special procedure or staff for handling such appeals; the right of appeal was not publicized and usually the worker did not know about it.

WMC is now working out an over-all Employment Stabilization Program, under which a uniform policy on control of hiring will be established. Under the new program, workers covered by the plan will be required to obtain "certificates of Availability" (i.e., releases) from former employers before getting a new job. If a release is refused, the case will be reviewed by the local Employment office, and the worker will be informed in writing of the decision and the fact that he has a right to appeal. 1/

The new procedure, which will be released in about 10 days, will be put in effect in all areas which now have employers' agreements. (A list of these areas will be furnished us by the WMC and will be forwarded as soon as it is received. In other areas, the Regional Manpower Director will decide whether or not the program should be put in operation. Where the program is in effect, the requirement of obtaining releases does not necessarily apply to all workers in the area but only to those the Regional Manpower Director designates.

1/ Further information on the appeal procedure, or other subjects mentioned here, will be sent on request after the new program has been officially released by WMC.

WAR MANPOWER COMMISSION - 1944

January 28, 1944

War ManpowerCommission
Washington, D. C.

Gentlemen:

The Labor Market Report is important to us as it is our source of determining shifts in woman labor demand. It is our job to carry on studies concerning specific problems that affect this woman labor supply and to advise employers concerning such problems. Therefore several copies of Labor Market Review are necessary to the Bureau.

Very truly yours,

Bertha M. Nienburg,
Assistant Director

BMN:LW

April 15, 1944

Mr. C. L. Shartle, Chief
Division of Occupational Analysis and Manning Tables
War Manpower Commission
Washington, 25, D. C.

My dear Mr. Shartle:

Thank you for sending to the Bureau two copies of the second edition of the SUPPLEMENT TO THE DICTIONARY OF OCCUPATIONAL TITLES. In the past we have found your material very helpful.

Sincerely,

Bertha M. Nienburg,
Assistant Director

BMN:LW

War Manpower

WAR MANPOWER COMMISSION

WASHINGTON 25, D. C.

May 31, 1944

WOMEN'S BUREAU
JUN 2 1944
DEPARTMENT OF LABOR

Miss Mary Anderson
Women's Bureau
Dept. of Labor
Washington, D. C.

Dear Mary:

You will note from copy of the agenda which has already gone forward to you for our next Committee meeting on June 14 and 15, that Brig. General Frank T. Hines is scheduled to attend the meeting on Thursday, June 15 at 10:00 a.m.

The Committee hopes very much that you will make a special point to attend this particular session.

With best wishes and looking forward to seeing you, I am,

Most cordially yours,

Margaret

Margaret A. Hickey, Chairman
Women's Advisory Committee

WAR MANPOWER COMMISSION
WOMEN'S ADVISORY COMMITTEE

TENTATIVE AGENDA

June 14 and 15, 1944

Social Security Building

WOMEN'S BUREAU
JUN 2 1944
DEPARTMENT OF LABOR

Wednesday, June 14, 1944 - 10:00 a.m. (Executive Session) - - - - Room 5440

Report of the Executive Director

Wednesday, June 14, 1944 - 2:00 p.m.

Sub-Committee Meetings

Community Facilities and Services, Mrs. Dunbar, Chairman - - - - - - - - Room 5440

Public Relations, Miss Bloodworth, Chairman - - - - - - - - - - - - - - Room 5353

Post-War Planning, Dr. Franklin, Chairman - - - - - - - - - - - - - - - Room ____

Thursday, June 15, 1944 - 10:00 a.m. - - - - - - - - - - - - - - - - - Room 5440

Employment Problems of Women in the Post-War

Brig. Gen. Frank T. Hines, Administrator of Veterans' Affairs
Dr. William Haber, Assistant Executive Director for Program Development, WMC

Thursday, June 15, 1944 - 2:00 p.m. (Executive Session) - - - - - - - - Room 5440

1. Frieda Miller, Special Assistant to U. S. Ambassador to Great Britain, The Honorable John Gilbert Winant

2. Reports of Chairman of Women's Advisory Committee and Chairmen of Sub-Committees

4205

V3 & this will clear, please phone - RFN

Phone call from Hazel Cuffey, War Manpower Commission, Branch 2983.
Aug. 31, 1944, to RFN

Policy of U.S.E.S. in regard to recruiting workers for jobs that pay lower than War Labor Board minimum.

1. In the matter of referral ~~xxxxxxx~~ of applicant to such jobs,

the local E.S. official, on getting the request from ~~the~~ an employer who offers wages lower than the WLB minimum, ~~the E.S. official~~ tells the employer not to expect the E.S. to be able to fill his request, and the E.S. official suggests that the employer offer more pay.

If the employer refuses to, or does not, then the E.S. official is prohibited from recruiting workers for that employer.

However, the E.S. official is not prohibited from referring an applicant to such an employer. The explanation of this is that there are people applying for jobs who obviously are not ~~af~~ average ability, who obviously would not fit into other kinds of work, and if the E.S. official thinks this is so, he will refer such a "submarginal" person to that employer.

2. Employment stabilization committee can issue a statement of availability to anyone employed at wages below the WLB minimum, if such an employee asks for one in order to obtain a job paying at least the WLB minimum.

- - - - -

Statement from Mr. Wiener, Bureau of Placement, WMC, to RFN Aug. 30.

An "essential" industry is one where a man of draft age is not touched by the Selective Service.

A "locally needed" industry - laundries are such - is one where a man can be drafted from his job, but the industry is protected from losing its employees since the local employment stabilization committee will not give an employee in a "locally needed" industry a statement of availability ~~(~~ needed by an employee if he wishes to transfer to another industry).

A "locally needed" industry, in other words, has no standing before the Selective Service board in an area, but it is part of the "system" maintained by the employment stabilization committee in an area

STANDARD FORM NO. 64

War Manpower

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Miller DATE: September 12, 1944

FROM : Louise Stitt

SUBJECT: War Manpower regulations concerning referrals and recruitment for firms declared "locally needed."

The following information was secured from Mr. Albion G. Taylor, Executive Secretary, Essential Activities Committee, War Manpower Commission, and Chairman, Locally Needed Committee, War Manpower Commission.

According to Mr. Taylor, all hiring throughout the United States must be through USES, or through an agency such as a trade union or a trade association authorized by the War Manpower Commission to make referrals. This is the rule whether or not an area has been declared a "critical labor area."

The answer therefore to your first question: "Must all employers whether or not they have been declared 'locally needed' hire through the USES in critical labor areas?" is yes. In critical labor areas, Area Priority Committees determine the order in which each industry shall receive referrals from the USES. Conditions may be such in a given area that a "locally needed" industry would have a higher labor priority than some essential industries. In emergencies industries, such as laundries for example, that have been declared neither "locally needed" nor essential might have a high labor priority rating because their services are necessary to protect the health of the community. The position of an industry on the labor priority list in a critical labor area determines the order in which referrals are made to these industries by the USES.

Your second question is: "May individual firms of a given industry be declared 'locally needed' in a community, although the entire industry in that community is not so declared?" The answer again is yes. The policy of the War Manpower Commission is to declare an industry "locally needed" only when the industry takes the initiative and asks to be so declared. Every effort is made by the area director to induce the majority of the firms in the industry in a given area to accept the designation of "locally needed," when in his opinion, the industry should be so classified. Those establishments that do accept this designation are given a certificate indicating that they have been placed on the "locally needed" list. All firms, whether they have accepted the "locally needed" designation or not, must hire through the USES. The"locally needed" firms have prior claims on referrals. The order in which industries are entitled to referrals from the USES or any agency designated to make referrals is as follows: (1) essential industries; (2) "locally needed" industries or firms; (3) all other industries. The USES may recruit for firms and industries not declared "locally needed" or essential, only when the labor requirements of all other plants have been met.

Plants may hire at the door only persons who have been unemployed for 60 days or longer or, in a few of the 188 War Manpower areas, older women. An older woman is defined in some areas as 55 years or older, in others as 60 or older.

The above is a summary of the War Manpower Commission's regulations. The extent to which they are observed in all areas is an open question.

7 files

Miss Miller

December 23, 1944

Mary V. Robinson

Your request that Mr. James R. Branson, Bureau of Training, War Manpower Commission, be given suggestions as to the need for reconversion plans for training women along domestic service -- in response to his telephone call to the Women's Bureau, November 25, for suggestions and information to assist in the reconversion training program for women being formulated in his Bureau.

On December 19 I had a long telephone conversation with Mr. Branson on the problems and needs in the domestic service field, in connection with training possibilities, and he seemed greatly interested in the factors I discussed which may be summarized as follows:

1. We know from many reports that girls and women do not want to go into domestic service (especially household employment) except as a last resort, and if they do take jobs in this field they transfer to other types of employment as soon as circumstances permit. Such opportunity offered by the war is indicated by the decrease in number of such workers, by a half-million from December 1941 to March 1944. The question of adequate training is of paramount importance as the lever to improve conditions in this field ~~xxx~~ to raise its status in the general occupational scheme in this country, and to attract some of the women released from war jobs.

2. Several weeks ago I had talked with Louise Moore (who is cooperating with Mr. Branson on developing a training program for women on practical lines). I told her of the growing interest of various women's organizations as well as the Women's Bureau concerning the great need for setting up satisfactory training facilities for domestic workers. She had not realized that this subject was again coming to the fore. She was interested, and when I discussed with her the possibilities for training girls and women for such service within the public school system, we agreed that such a program might be worked out on several levels:

a. For girls in school, a well-rounded course in the State vocational educational system through funds available from the Smith-Hughes or George Dean Appropriations of the Office of Education, that is through the Federal-State grant-in-aid system.

b. For girls and women not in regular school attendance, special evening courses in the adult education system -- for training of workers and homemakers in regard to domestic service in all its phases.

c. I suggested as a third possibility, in view of the disinclination of girls to take domestic service training, that home-making courses might be a requirement of girls in the junior and senior high schools -- somewhat along the line of present home economics courses but with additional and dramatized features to include questions pertaining to domestic service, especially

employer-employee relations in this field. In this way girls could be trained -- without being divided as to whether they would be homemakers or household workers -- and all could derive benefit, irrespective of which line they might pursue.

3. Miss Moore agreed with me that women as citizens in a community can be a definite force, especially through their organizations, in having set up in their local public school system whatever courses they think desirable and that the interest which certain women's organizations are now taking in regard to domestic service possibilities might be effective in developing satisfactory training programs in the public schools. Such organizations can use publicity and advertising methods, not easily usable by the schools, to get results.

4. I discussed the new trend in regard to training workers along domestic specialty lines, to be headed up under an agency (run as a commercial or cooperative enterprise, somewhat like a visiting nurses' association) and to be hired out by that agency. The A.W.V.S. training plans in this field were cited as an illustration.

5. I pointed out that this type of work could be put on a better basis, if effort were made to show that household or domestic service is not necessarily a blind alley job, but that it could lead, with additional specialized training, into such desirable jobs as hotel, institutional, or scientific housekeepers, managers of tearooms or restaurants, child care specialists, etc.

6. I spoke of domestic workers' lack of coverage by social and labor legislation, and of the joint report now in preparation by the Social Security Board and the Women's Bureau, to show the need for extension to these workers of the Old Age and Survivors' Insurance, and to present a possible system of implementation.

7. I suggested the desirability of a national committee with representatives from the various Federal agencies concerned in any way with the problems and conditions of domestic workers, to help formulate a coordinated program.

8. I told him of various materials on domestic service (including the information on the British projects and program) which he asked to have sent him. That has been done with a covering letter offering the Women's Bureau's assistance wherever this might be desired.

Files War Manpower

December 21, 1944

Mr. James R. Branson
War Manpower Commission
Room 829
1778 Pennsylvania Avenue
Washington 25, D.C.

Dear Mr. Branson:

Following up my telephone conversation with you of yesterday, I am enclosing materials on domestic service (or shall we say domestic engineering?) that are readily available from this Bureau. You will note that the report of the Philadelphia Institute on Household Occupations is to be returned when you have finished with it as we have only one other copy in our files at present. Enclosed also is some suggested reference material that you might be able to secure from the sources as given.

I was very much pleased with the interest you manifested in this field of training for women workers, as I believe your agency is in the key position to promote not only training activities but other essential progress such as discussed yesterday.

If I can be of further service I shall be glad to have you call on me.

Sincerely yours,

Mary V. Robinson, Chief
Information Division

MVR/mh

Following material mailed to Mr. James R. Branson
War Manpower Commission - Room 829
1778 Pennsylvania Avenue

The Philadelphia Institute on Household Occupations - Report (Please return)
(Copies could probably be secured by writing Miss Helen C. Goodspeed, Home Economics Division, Department of Education, 21st and the Parkway, Philadelphia, Pa.)
Reemployment of New England Women in Private Industry
Reading List of References on Household Employment and Supplement
Household Employment - An Outline for Study Groups
A New Program for Household Workers - by Mary V. Robinson
Changes in Women's Employment During the War
Domestic Workers Trained in Britain - New York Times article - 11/22/44
Household Training School - New York Times article - 11/22/44
AWVS Makes Plans to Train Domestics - New York Times article - 11/29/44
Information on Domestic Service - Women's Bureau - Prepared for discussion purposes by staff members

Suggested reference material

Household Employees Handbook by Marion Hurst, Coordinator, Household Employees Training, Oklahoma City, Oklahoma (A guide book to better paid positions for household employees - develops skilled, efficient workers); $1.25 -- Dewing Publishing Co., 100 N.W. 3rd Street, Oklahoma City, Oklahoma
Handbook for Instructors of Part-time and Evening Trade Extension Classes in Meal Planning and Cookery - Part I and Part II
Handbook for Instructors of Part-time and Evening Trade Extension Classes in Care of the House
Handbook for Instructors of Part-time and Evening Trade Extension Classes in Home Laundry

(Above handbooks - each costing 50¢ - can be secured from The Bureau of Industrial Teacher-Training, Division of Extension, The University of Texas, Austin, Texas)

Prewar Program of the New Haven Council on Household Employment, Mrs. C. D. Rostow, President, 222 Bishop Street, New Haven, Conn.
Vocational Training for Household Employment - U.S. Department of the Interior
Training Girls for Household Employment (Joint Experiment - N.Y.State Department of Labor and YWCA, Buffalo, N.Y.)
Adult Training in Domestic Service - Milwaukee Vocational School
Resident Training School for Household Employees, Oakland, Calif.
Training program - Frank Wiggins Trade School, 1646 S. Olive Street, Los Angeles, Calif.; Helen E. Featherstone, Instructor in Charge of Household Service
Training program - Trade and Industrial Division of Vocational Education, State Department of Education, Oklahoma City, Oklahoma

files War Manpower

Memo

Date - December 28 and 29, 1944

To: Miss Frieda Miller
From: Ethel Erickson

Subject: Buffalo conference of the WMC on recruiting women and increasing their employment in foundries.

Place of meeting: Room 1335 Rand Building, Buffalo.

Present: Mr. MacVaugh - representing the WMC, Washington office. He is the WMC member of the National Committee for Forge and Foundry Industry Recruiting. WPB and WLB have representatives on committee. Mr. MacVaugh called the conference in Buffalo.

Mr. Franklyn Howatt - representing WMC, Washington office, from the Public Relations and Publicity staff. He is to prepare publicity and a special kit for foundry managers on the employment of women.

Miss Anne Barley - representing the publicity staff of the War Department.

Mr. Abe Savage - representing the publicity division of Regional WMC office, New York City.

Mr. D. Post - representing the labor utilization unit of the Regional WMC office, New York City.

Mr. J. D. Cantry - Area Director, WMC, Buffalo.

Mr. Sweeney - District Director, WMC, Buffalo.

Miss Regina Weiss - Labor Utilization unit, WMC, Buffalo.

Mr. W. Tehlemann - attorney for the Allied Foundrymen's Association, Buffalo.

Discussion

Need for additional workers in foundries and WMC plans for meeting requirements.

Manpower shortage for ferrous foundries is acute in WMC areas 1,2,3,5 and 6. The present shortage in these areas was estimated as over 2,000 and the expected manpower needs within 90 days is 13,000. Navy needs for repairs and replacements involving foundry work are expected to increase from 11 million to 23 million monthly. Tank and heavy truck production is to be greatly increased.

The importation of Jamaicans and Mexicans especially for foundries is already underway. Employers are required to assume certain responsibilities for the housing and maintenance of Jamaicans. The WMC working with WPB and the housing authorities has made plans and arrangements to expedite housing and assist managements so as to keep these responsibilities from becoming onerous.

Reported that there is a surplus of women in some of the areas most in need of foundry workers. (2000 unemployed women applying for unemployment insurance reported in Buffalo). WMC is hoping that 15 percent or more of the increased need for workers in foundries can be met from the unemployed women.

Present WMC project is (1) to revitalize and promote with management the effective utilization of women as foundry laborers and (2) to recruit women for the jobs.

Buffalo is a foundry center and the WMC is planning to try out its foundry-women program here before extending ti to other areas or giving it up if not practicable. Plans are for the use of movie trailers, radio broadcast, newspaper publicity, etc. to interest the women in applying for foundry work.

Discussion

Round table discussion of:
Nature and marginal character of the foundry industry - small units typical, inadequate sanitary facilities, small working capital, inefficiency, lack of labor saving equipment, etc.

Type of labor needed - husky, stable, flexible common labor type most needed.

Limitations to the use of women - weight lifting, dirtiness of work, attitude of management and foremen inauspicious to women's employment.

Training needs - slight - no need of special training programs.

Need for careful selection of women and condition management for their induction.

Area and regional representatives of the WMC questioned the advisability and possibility of employing women in local foundries to any greater degree than now employed. Buffalo has 17 foundries with 7240 employed and of these 880 or about 12 percent are women. Present requests for foundry workers on file total 60 and none is for women. Miss Weiss presented the difficulties of employing women in foundries and recruiting suitable women.

There was considerable discussion of the use of Jamaicans and also of diverting men from other industries, but Mr. MacVaugh reiterated that plans for recruiting of men were not to be disc ssed at this meeting as the supply of men would not be adequate and that women would be needed even if not in any large numbers and even if they were only partly as efficient as men.

Mr. Tehlemann of the foundry association did not feel that the members of his organization were interested in further employment of women but offered to contact them. Later in the day he called and had arranged a meeting of his group for January 6th when Mr. MacVaugh will present his program of recruiting women.

(Agent of Women's Bureau suggested to Mr. MacVaugh that probably recruiting women through the employers contacts with foundry employees, their families and neighbors might be more effective than movie, radio, and human interest stories in newspapers.)

Two foundries were visited by the Washington representatives, Miss Weiss of the area WMC, the regional WMC for the first, and the Women's Bureau agent.

Allegheny-Ludlum was visited as having the highest proportiong of women. When Mrs. Wright of the Women's Bureau scheduled the plant in 1943, the proportion of women was about 43 percent. It is now about 26 percent as more heavy castings are being made and management did not feel that women could be used effectively so about one half of about 250 were laid off. The manager, Mr. Scott, reported that in about a month he thought they could take back 10 or 12 women but wanted 40 men. A woman working as a full fledged molder was watched. She was a stocky, heavy muscled build. She prepared, shovel, rammed with a pneumatic sander and lifted the flask and mold with no male assistance. However, she was not on the heavy but one of the lightest molds. Otherwise, jobs were as described by Mrs. Wright.

The second plant, American Brake Shoe Foundry, was visited because no women employed and the plant was reported as a mechanized production shop. Management was not interested in the use of women and doubted whether it would be possible to use any. Mr. MacVaugh pointed out what he thought to be woman-job possibilities. One of these was directing a "walking crane" which picks up about 3000 lbs. of castings just poured and in a red heat stage and moving them to a roller conveyor where they are passed on the cooling floor. A heavy six-foot or more man was tending crane. Women's Bureau agent tried it and found it very hard to direct even though electrically powered and the roller conveyor where the load of castings was deposited was above the head of a woman of average height. A job at the controls for automatic pouring might be filled by a woman but experience and some knowledge of hot metals is necessary. A couple of other job possibilities were discussed but none of them were desirable openings for women and at the best only 3 or 4 out of about 65 jobs could be considered suitable for women.

Manpower

WAR MANPOWER COMMISSION
Washington 25, D. C.

In reply
refer to WMPI

WMC Field Instruction No. 216
Bureau of Placement No. 216
December 20, 1944

U.S. EMPLOYMENT SERVICE BUREAU
DEC 29 1944
DEPARTMENT OF LABOR

To: All Regional Manpower Directors

Subject: Certification by the War Manpower Commission of Civil Service Establishment Orders Proposed for Inter-regional Recruitment

The War Manpower Commission Regional Director has primary responsibility for handling the manpower problems of his respective region. While the United States Civil Service Commission is responsible for recruitment of workers for agencies or establishments of the United States Government, such responsibility is to be discharged through the cooperative efforts of that agency's representatives and War Manpower Commission personnel. Accordingly, the War Manpower Commission has for some time conducted through its facilities, inter-regional recruitment for governmental establishments whose needs could not be met intra-regionally.

Although all War Manpower Commission regions have participated in recruitment on Civil Service orders, it now appears that some regional offices do not have a clear understanding relative to their responsibilities for determining availability of labor, and recruiting such labor for Civil Service establishments. Accordingly, this instruction will serve to clarify the responsibility of the War Manpower Commission regional offices for assisting in the staffing of governmental establishments, and to confirm our wire of November 18, 1944.

Procedure

Orders originated by Civil Service establishments shall be accorded the same recruitment treatment as orders from any other employer, with the exception of some standards precedent to initiation of inter-regional recruitment with which certain agencies of government cannot comply. Civil Service orders may be proposed for inter-regional recruitment only when they have warranted the assignment of category 3 priority rating by the Area Director, in accordance with instructions contained in Field Instruction No. 416, Supplement No. 2 (Second Revision). Futhermore, the orders must have been in intra-State and intra-regional recruitment for a reasonable length of time with a priority designation of category 3.

When, after cooperative recruitment action on Civil Service orders by the War Manpower Commission and Civil Service representatives in the region in which a Civil Service establishment is located, it is determined that an insufficient labor supply is available, the Regional Director of the Civil Service Commission shall transmit such notification to the War Manpower Commission Regional Director in whose region the establishment is located. If the Regional Director of the War Manpower Commission agrees that workers in adequate numbers cannot be recruited within the War Manpower Commission region, he will so certify to the War Manpower Commission headquarters by wire. Simultaneous certification will be made by the War Manpower Commission Regional Director to the Civil Service Regional Director. Certification by a Regional Director to headquarters should include the following items relative to the employment needs of the particular Civil Service establishment:

4256

1. Total number of additional workers needed, validated jointly by the Civil Service Commission and the War Manpower Commission.

2. Total number of openings for which suitable housing is available.

3. Total number of openings which can be filled within the region.

4. Number of openings for which inter-regional recruitment is requested by month, for a two month period.

The above information will be immediately supplemented by transmittal of a complete order and a tabular report which will provide substantiating data upon which the National Manpower Priorities Committee determinations will be based. This tabular report, which is described in WMC Field Instruction No. 571 (Revised), is to accompany all requests for inter-regional recruitment, including orders for recruitment for Civil Service establishments.

Initiated by:

/s/ John K. Collins
Director, Bureau of Placement

/s/ Vernon A. McGee
Deputy Executive Director

B and D distribution

Manpower

WAR MANPOWER COMMISSION
Washington 25, D. C.

In reply
refer to WMRB

WMC Field Instruction No. 463 (Rev.)
Supplement No. 1
Reports and Analysis Service No. 38
December 15, 1944

To: All Regional Manpower Directors

Subject: Monthly Field Operating Report

As you know the Monthly Field Operating Report is designed to provide a brief resume of problems, actions and results of actions in dealing with the manpower situation in each administrative (or labor market) area.

In general, the Monthly Field Operating Report is intended to be the vehicle whereby the area office describes the problems it has encountered during the month and actions taken, and to the extent possible provides an evaluation of the results of those actions so that the levels of administration concerned are provided with a picture of the progress being made in the area.

To date the Field Operating Report has not entirely accomplished these objectives for a number of reasons. Examples of the type of programs to be discussed in the report have been only suggested in the instruction and, further, it has been indicated that not all of them warrant review each month because of the lack of significant change.

The programs which have been utilized by the WMC were originally directed, in varying degrees, toward all establishments in the various areas. Now the primary objectives of WMC is the staffing of "must" plants and such programs as priority referral, required release, limited referral, ceilings, etc., are directed toward this objective. Since WMC programs are now focused toward the staffing of "must" plants the Monthly Field Operating Report should reflect such activity.

Effective with the Field Operating Report covering the month of December

1. The due date is to be the 8th rather that the 20th of the month and

2. In Part II of the report special emphasis is to be placed on the status of the manpower programs in the area directed toward staffing "must" plants, following closely the instructions in Section 5015 of the WMC Reporting Manual and taking care to include in each report data specifically covering

   a. Limited referral (Limiting referrals to specific categories): Indicate length of time (number of days during the reporting period) limited referral was in effect and the categories to which such limitation was applied. (For definition of this item, see Item 1C of WMC Field Instruction No. 416, Supplement 1.)

(b) Required release of workers, include a report on the number of firms affected, the number and type of workers involved, and any problems encountered. (For definition of this item see pages 8-10 of WMC Field Instruction No. 505, Part I.)

(c) Adjustments in ceilings, including (1) the number adjusted upward and the number of workers involved; (2) the number adjusted downward and the number of workers involved; and (3) a review of actions taken to effect blanket reductions in ceilings, the approximate number of firms affected and the percentage cut instituted, the effective date of the cut and the results of this action, if available, in terms of number of workers released.

(d) Referrals by priority categories; this review should include brief explanatory comments on any disproportionate ratios of referrals, placements and placement-assists in relation to openings.

Your attention is again called to the fact that brevity and conciseness of presentation is earnestly desired; wherever appropriate, statistical summaries should be used in order that narrative statements may be kept to a minimum and be directed toward the interpretation of the data presented.

Initiated by:

/s/ Collis Stocking, Chief
Reports and Analysis Service

/s/ Vernon A. McGee
Deputy Executive Director

B and D Distribution

WAR MANPOWER COMMISSION
Washington 25, D. C.

In reply
refer to WMFA

WMC Field Instruction No. 645
Personnel [illegible] No. 69
December 28, 1944

WOMEN'S BUREAU
DEC 29 1944
DEPARTMENT OF LABOR

TO: All Regional Manpower Directors

SUBJECT: Policy on Negotiations for Release of WMC Personnel from the Armed Services

The following is submitted as a guide in handling requests for the release of WMC personnel from the armed services:

1. The Chairman is reluctant to ask for the release of anyone from the armed services, feeling that those in charge of the armed services may generally be relied upon to release any persons not needed.

2. The Chairman will not request the release of anyone under 30 years of age.

3. Under a showing of exceptional need and special qualifications, the Chairman may approve requesting release of persons 30 to 38 years old. Normally, such requests will not be made except for persons urgently needed for recruitment of workers for critical war production needs. Requests will not be made for persons to help with the general administrative or research work of the WMC.

4. Where persons above 38 are involved--i.e., persons in the age brackets not generally considered militarily desirable--if WMC has a real need for their services, requests for release may be approved.

5. Where a branch of the armed forces has announced a policy of releasing men over a certain age who have assurance of employment in essential war work, Regional Directors may give to such a person a letter stating that, if he is released, WMC has a position in essential war work for him.

6. The mere fact that a former WMC employee is fit for only limited military service is not adquate reason for requesting release. Work in the armed forces, extremely vital to the successful waging of war can be performed by persons not physically fit for combat duty.

Initiated by:

/s/ R. M. Barnett
Director of Personnel

/s/ Vernon A. McGee
Deputy Executive Director

B and D Distribution

4304

WAR MANPOWER COMMISSION
Washington 25, D.C.

Field Instruction No. 644
Bureau of Placement No. 248
December 27, 1944

In reply
refer to WMPX

To: All Regional Manpower Directors

Subject: Employment Ceilings for Race Tracks

As indicated in a recent teletype, James F. Byrnes, Director of War Mobilization and Reconversion, has requested all race track operators (including dog, trotting and running tracks) to cease operations not later than January 3, 1945, and to not resume operations until war conditions permit.

Accordingly, you are asked to issue appropriate instructions to the Area Directors involved that zero ceilings effective January 3, 1945, are to be established for all race track operations in your region. No new ceilings are to be authorized without specific permission to do so from this office.

A copy of a letter from Mr. Byrnes to Mr. Hay requesting this action is attached.

/s/ Vernon A. McGee
Deputy Executive Director

Initiated by:

John K. Collins
Director, Bureau of Placement

Attachment

B and D Distribution

4303

OFFICE OF WAR MOBILIZATION AND RECONVERSION
Washington 25, D. C.

December 23, 1944

Dear Mr. Hay:

After careful consideration, I have reached the conclusion that the continued operation of race tracks is not conducive to our maximum war effort in that it requires the employment of manpower needed for more essential operations as well as critical materials and services.

The existing war situation demands the utmost effort that we can give to the support of our armed services in the production of needed war materials. Therefore, I have requested the management of race tracks throughout the United States to close down their tracks by January 3, 1945 and to refrain from opening closed tracks until war conditions permit.

While I have every hope that the management will comply with the request, I would like the War Manpower Commission to be prepared to withdraw all ceiling authorizations and to refrain from authorizing new ceilings until war conditions permit.

Sincerely yours,

/s/ James F. Byrnes

Director

Mr. Charles M. Hay, Acting Chairman
War Manpower Commission
Washington, D. C.

Please pass promptly 11/28

~~Division~~

~~Pediatrics~~ 4:15 PM Nov. 28

~~Spring~~

~~Winter~~

~~Hypersensitive~~ 12/19/44

~~Dermatology~~ 12/20 Read this - important to me

~~Neither~~

Files

WAR MANPOWER COMMISSION
Washington 25, D. C.

In reply
refer to WMGC

WMC Field Instruction No. 607
Office of the General Counsel No. 23
November 22, 1944

WOMEN'S BUREAU
NOV 24 1944
DEPARTMENT OF LABOR

TO: All Regional Manpower Directors

SUBJECT: Revision of War Labor Board General Order No. 30

On November 11, 1944, the National War Labor Board amended its General Order No. 30 to read as follows:

> General Order No. 30 - "In accordance with the provisions of Section 4 of Title II of Executive Order 9250, increases in wage or salary rates which do not bring such rates above 50¢ per hour may be made without the approval of the National War Labor Board. Increases above 40¢ per hour made hereunder may not, however, furnish a basis either to increase price ceilings of the commodity or service involved or to resist otherwise justified reductions in such price ceilings."

In announcing the amendment the National War Labor Board stated in part as follows:

> "Voluntary wage and salary increases which do not bring rates above 50 cents an hour, heretofore approved by the National War Labor Board to correct substandards of living whenever application was made for such approval, may now be put into effect by employers without the necessity of obtaining approval, according to a procedural revision of General Order No. 30 announced by the Board today.
>
> "The Board's action effects no change in policy. It is designed solely to eliminate the inconvenience and delay involved in filing applications for approval of voluntary wage adjustments between 40 and 50 cents an hour which the Board regularly approves under its present policy.
>
> "In the past such adjustments could be made without approval only up to 40 cents an hour."

The above amendment is significant for the purposes of section 907.4(b)(5) of Reg. 7 and analogous provisions in local employment stabilization programs. All local United States Employment Service offices should be appropriately advised.

Initiated by:

/s/ Bernice Lotwin
Acting General Counsel

/s/ Vernon A. McGee
Deputy Executive Director

B and D distribution

WAR MANPOWER COMMISSION
Washington 25, D.C.

In reply
refer to WMPE

WMC Field Instruction No. 549
Bureau of Placement No. 227
Supplement No. 1
November 21, 1944

WOMEN'S BUREAU
NOV 24 1944
DEPARTMENT OF LABOR

To: All Regional Manpower Directors

Subject: Status of Veterans of World War II Under the War Manpower Commission Employment Stabilization Program

The definition of "Veteran of World War II" contained in Section II of Field Instruction No. 549, issued September 25, 1944, is hereby revised, as follows:

> As used in this instruction, the term, Veteran of World War II, means a person who served in the active service of the armed forces of the United States subsequent to December 7, 1941, and who has been discharged or released therefrom under conditions other than dishonorable.

This revision means that the policy stated in WMC Field Instruction No. 549, dated September 25, 1944, applies to any individual who was released or assigned to the inactive reserves after a period of active service subsequent to December 7, 1941, as well as to persons discharged under conditions other than dishonorable.

Initiated by:

/s/ John K. Collins
Director, Bureau of Placement

/s/ Vernon A. McGee
Deputy Executive Director

B and D distribution

4027

WOMEN'S BUREAU
NOV 24 1944
DEPARTMENT OF LABOR

WAR MANPOWER COMMISSION
Washington 25, D. C.

In reply
refer to WMPE

WMC Field Instruction No. 268
Bureau of Placement No. 157
Supplement No. 1
November 18, 1944

To: All Regional Manpower Directors

Subject: Recruitment of Federal Employees for the Women's Branches of the Armed Services

Purpose

Attached is U. S. Civil Service Commission Departmental Circular No. 509 on the above subject. The information contained in the circular should be transmitted to all local offices of the United States Employment Service so that local office personnel will be able to advise correctly applicants who wish to join the women's branches of the armed services and who are Federal employees.

Policy

As stated in the circular, a Federal employee cannot be enlisted or commissioned in the women's branches of the armed services on the basis of a referral by the USES. Therefore, the USES should not issue referrals to Federal employees for this purpose. The USES shall, however, continue to handle applications for statements of availability from Federal employees, but should inform Federal employees who desire statements for the purpose of joining the armed services that such a statement will not serve in lieu of a release from the employing agency for the purpose of joining the armed services.

Initiated by:

/s/ John K. Collins
Director, Bureau of Placement

/s/ Vernon A. McGee
Deputy Executive Director

Attachment

B and D distribution

UNITED STATES CIVIL SERVICE COMMISSION

WASHINGTON, D. C.

November 11, 1944
X:CE:ajp

DEPARTMENTAL CIRCULAR NO. 509

SUBJECT: Recruitment of Federal Employees for the Women's Branches of the Armed Services

TO HEADS OF DEPARTMENTS AND INDEPENDENT ESTABLISHMENTS:

1. Purpose - The purpose of this circular is to furnish information on the policies of the War and Navy Departments for the enlistment or commissioning of women employees of the Federal Government.

2. Extent of War Manpower Commission Controls - The regulations of the War Manpower Commission do not apply generally to recruitment of women for the women's branches of the armed services. However, by a joint agreement, dated March 4, 1944, of the Secretary of the Navy, the Secretary of War, the Director of the Office of War Information, and the Chairman of the War Manpower Commission, recruiting of women from eight specified activities was made subject to certain controls by the War Manpower Commission. The activity of Governmental Services is not included in these eight activities. Therefore, as far as the War Manpower Commission is concerned, women employed, or last employed, in the Federal Government may be enlisted or commissioned without releases or statements of availability.

3. Agreement of War and Navy Departments to Secure Release from Employing Agency - The War and Navy Departments have agreed that women who are employed by the Federal Government or who have voluntarily terminated such employment within 60 days will be commissioned or enlisted in the armed services only (a) on the presentation of a release by the agency by which they are, or were, employed, or (b) on authority of the Joint Army-Navy Personnel Board, which acts on appeals growing out of agencies' denial of releases. (Letter to the Commanding General of all Service Commands, Army Service Forces, August 5, 1944, File VLS:FE:rma, and War Department Circular No. 394 dated October 6, 1944, Page 2, Section IV: Navy Procurement Directive No. 14-44 issued March 24, 1944, and Navy Procurement Directive No. 116-43 issued October 2, 1943.)

4. Referrals by the United States Employment Service Insufficient - Paragraph 6 of the agreement referred to in paragraph 2 states that "* * * the United States Employment Service will direct eligible women to the Armed Forces Recruiting Stations on the same basis now used in directing them to essential war jobs." However, in view of the instructions of the War and Navy Departments referred to above, such referral by the United States Employment Service will not be sufficient for enlistment or commissioning of Federal employees in

women's branches of the armed services. If a recruiting office of one of the women's branches of the armed services should propose to enlist or commission a Federal employee upon referral by the United States Employment Service, the attention of the recruiting office should be called to the instructions issued by the War and Navy Departments.

5. Appeals - The only appeal open to a Federal employee who has been denied a release in this connection is to the Joint Army-Navy Personnel Board. Such an appeal must be made through, and with the approval of, the recruiting office to which the Federal employee has applied for enlistment or commissioning.

6. Inquiries - Questions concerning this circular may be addressed to the Civil Service Representative assigned to the agency's Washington or field offices, or to the Examining and Personnel Utilization Division, telephone extension 478 (Commission's Central Office), or to the appropriate regional or branch regional office of the Commission.

By direction of the Commission:

Very respectfully,

L. A. Moyer
Executive Director
and Chief Examiner

War Manpower Commission
(11)

WAR MANPOWER COMMISSION
[redacted]
[redacted]
UNITED STATES EMPLOYMENT SERVICE
610 Newhouse Building
Salt Lake City, Utah

[redacted]
OFFICE OF THE
STATE DIRECTOR

In Reply Refer
to File UT:RA

December 9, 1944

Filed in Vault - with other material -

WOMEN'S BUREAU
DEC 13 1944
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Enclosed is a Demand-Supply Supplement for the month of November from the Ogden, Salt Lake, Tooele, and Provo areas in the State of Utah.

The information contained in these reports is restricted.

Very truly yours,

Joseph S. Mayer

Joseph S. Mayer,
State Manpower Director - Utah

Enclosure

for
General Files
from
Research Division

CROSS REFERENCE SHEET

Name or Subject

War Manpower Comm.

File No.

Regarding

Date

Memos & material on minimum wage rates, in Laundry Industry under "locally-needed" finding of W.M.C.

SEE

Name or Subject

File No.

Laundry Industry — — 215

File cross reference form under name or subject at top of the sheet and by the latest date of papers. Describe matter for identification purposes. The papers, themselves should be filed under name or subject after "SEE."

CAT. NO. 6703 FILING EQUIPMENT BUREAU

War Manpower

November 27, 1944

Mr. Robert C. Goodwin,
Regional Director,
War Manpower Commission,
Euclid Avenue and East Ninth Street,
Cleveland 14, Ohio

Dear Mr. Goodwin:

Thank you for your letter of November 23 regarding our leaflet entitled "Attack Turnover."

We would be glad to send you 2,000 copies of this leaflet as you requested but at present we do not have that many. A reprint has been ordered and it will take about ten days. We are sending 500 copies now and will send the other 1,500 copies as soon as our reprint is received.

Sincerely yours,

hm

Frieda S. Miller, Director

REGIONAL OFFICE

WAR MANPOWER COMMISSION

EUCLID AVENUE AND EAST NINTH STREET

CLEVELAND, OHIO

Zone 14

KENTUCKY
OHIO
MICHIGAN

WOMEN'S BUREAU
NOV 25 1944
DEPARTMENT OF LABOR

November 23, 1944

U. S. Department of Labor
Women's Bureau
Washington, D. C.

Attn: Mary B. Robinson
Information Division

Gentlemen:

At the Regional Utilization Chiefs' Conference held in Washington November 15, 16, and 17, a pamphlet entitled "Attack Turnover -- You in the Plant, in the Union, in the Community," prepared by Virginia C. Abbott, was called to our attention.

This is an excellent pamphlet which we feel has been prepared in such a manner that it should receive the attention of all those interested in its contents. We believe it has been designed to forward the war effort at a time when it is urgently needed.

We are desirous of distributing this pamphlet to our local U. S. Employment Service offices and to the area, state, and regional office personnel in Region V, especially to the Manpower Utilization Consultants, Employer-Service people, and others who work with labor-management committees.

In order to cover our complete distribution, we will need at least 2,000 copies of this pamphlet and wonder if you would be able to furnish us with this quantity.

We would appreciate hearing from you at your earliest convenience.

Sincerely,

R. C. Goodwin

Robert C. Goodwin
Regional Director

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

November 28, 1944

(Miss Barnard)
Ext. 620

Mr. Collis Stocking
Chief, Reports
War Manpower Commission
Washington 25, D.C.

Dear Mr. Stocking:

We are writing to request you to make available to us if possible 50 copies of the October 1944 issue of the MANPOWER REVIEW. Because of the article contained therein, "The Future of the USES," by William Haber, we would like to distribute these copies to a group of key women who as representatives of important national organizations will attend a small conference called by the Women's Bureau on December 4 and 5 for the purpose of considering the reconversion problems and prospects of women workers.

We shall appreciate immensely your cooperation in this matter.

Sincerely yours,

Frieda S. Miller, Director

MVR/mh

Files
War Manpower

Miss Frieda S. Miller — November 25, 1944

Rachel F. Nyswander

Material Women's Bureau can furnish to aid in setting up training for women for postwar employment.

Mr. James R. Branson, Bureau of Training, War Manpower Commission, called me, at the suggestion of Virginia Price of the Women's Advisory Committee of WMC with the following query:

> "There are plenty of estimates showing how many women will probably be in the labor market after the war, there are statements coming out all the time that such-and-such a percent of women workers in war plants want to stay in paid work after the war -----
>
> "Now, what do you know in the Women's Bureau about industries who will want to keep women, about employers who will hire them, about jobs in plants they can stay in or be hired for in greater numbers -----
>
> "In other words, how are we, here, going to plan any training for women unless we know more than just these general pronouncements as to numbers and percents staying on ----"

He seemed to be putting it up to the Women's Bureau to give them real advice and practical suggestions, and from the tone of his voice, he meant business.

I mailed him Miss Pidgeons "postwar" bulletin (with the leaflet).

I would like to send him a typed copy of Elisabeth Benham's bulletin now at the printing office "Employment Opportunities in Characteristic Industrial Occupations of Women." Do you approve?

Is there any more follow up to his phone call? A suggestion that he come over to confer with us? His title is "Training Specialist" and he's been assigned to the director's office (of the Bureau of Training), and does special work. Maybe he's now studying women's needs solely.

Miss Manning
files
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

November 15, 1944

Recd Nov 17.

Mrs. R. Niswander
Room 1320
Women's Bureau
Department of Labor
Washington, D. C.

Dear Mrs. Niswander:

In accordance with your request to Mr. Ewing, we are enclosing two copies of each of the following

Field	Instruction	No.	2
"	"	"	387
"	"	"	114
"	"	"	115
"	"	"	566

and also two copies of "Standards for determination of power laundries as locally needed activity," dated September 7, 1943.

Sincerely yours,

Collis Stocking

Collis Stocking, Chairman
Essential Activities Committee

Enclosures



STANDARD FORM NO. 64

Files
War Manpower

Office Memorandum • UNITED STATES GOVERNMENT

TO : Miss Pidgeon (copy to Mrs. Sater) DATE: Nov. 11, 1944

FROM : Miss Miller

SUBJECT:

I talked to Miss Bloodworth about the status of War Manpower Commission recommendations for separations procedure. She told me that a plan was adopted and that it has been sent out broadcast to agencies whose war contracts were terminated. The Committee, of course, has no knowledge of what those receiving the recommendations have done about them and would love to have some information. She is sure, however, that there would be no objection on their part to our presenting this material as the Committee's formulation of proper procedure.

FM:IS

Dept b

Mrs. Nan Mangham
Rm 720 WMC
1778 Penn. Ave.

Files

U. S. Department of Labor
Women's Bureau
Washington

September 22, 1944.

Prepared at request of Miss Rhea Radin, Bureau of Manpower Utilization, War Manpower Commission

The Women's Bureau in the United States Department of Labor is the Federal agency authorized by Act of Congress in 1920 to "formulate standards and policies which shall promote the welfare of wage-earning women, improve their working conditions, increase their efficiency, and advance their opportunities for profitable employment." Established in 1918 as the Woman in Industry Service, to protect interests of women then engaged in wartime production, the Women's Bureau found itself in 1940 the key source of information on employment problems of women when the National defense program got under way. After the country was actually at war and large numbers of women were needed in the war plants, the experience of the Bureau during the peacetime years enabled it to advise employers, labor unions, and Federal and State authorities on the many kinds of factory jobs women can do, and recommend standards for working conditions to bring about the most effective use of women.

The Women's Bureau has made basic studies of manufacturing processes in certain war industries to determine where, and under what conditions, women could be readily and extensively employed. Aircraft, instruments, ammunition, ordnance, steel, foundries, shipbuilding, are some of the key war industries surveyed by the Bureau. The Women's Bureau has also made special investigations in certain war-congested areas concerning the adequacy of housing, food, recreational and other facilities for working women, as the Bureau is looked to by various agencies and organizations to have the answers for new problems arising about women workers. Recommendations as to community services from the woman-worker angle are sent to the proper administrative agency having responsibility in these various fields.

During the present period when the country is shifting its production to at least partial peacetime manufactures, the Bureau is studying the effects this change will have on employed women, is examining the extent to which women are responsible for family support, and is investigating lines of occupational opportunities for women in the postwar period. The Bureau is planning a postwar program to safeguard the interests of women workers in relation to the common welfare.

The Women's Bureau's services are called on by the War and Navy Departments, Maritime Commission, and various other war agencies. Cooperative relationships have been established, as occasion warranted, with the National Housing Authority, Community War Services (formerly Office of Defense Health and Welfare Services) National Labor Relations Board, National War Labor Board, U. S. Office of Education, War Manpower Commission, U. S. Public Health Service, and others. The Bureau's regional offices in 8 areas make available more readily the counseling service the Bureau offers on all phases of women's employment.

rfn

September 2, 1944

Dr. Leonard Carmichael, Director
National Roster of Scientific
and Specialized Personnel
Office of Emergency Management
War Manpower Commission
Washington 25, D. C.

Dear Dr. Carmichael:

In going over the draft of the vocational monograph on chemistry which you sent for criticism August 25th, I have kept in mind the standards for monographs suggested by the Occupational Research Section of the National Vocational Guidance Association.

It meets their high standards with regard to scope and points covered. It also attempts more than most vocational monographs: (1) to clarify the position of the chemical engineer in relation to other engineers and to chemists; (2) to describe the processes with which the chemical engineer is concerned.

Its weakness from a vocational guidance point of view is rather in presentation--in vocabulary and style which do not seem to fit the wide audience for which your letter indicates the monograph is intended. It seems suitable for a counselor or for a college student who has studied chemistry but not for a high school pupil or an adult unfamiliar with technical terms. For example, it would be well not to use such terms as "fractional distillation"; "catalytic agent", "electrolysis", unless they are defined in the text or at the end in a glossary. The whole discussion with regard to processes might be condensed and combined and, to arouse interest, be introduced by reference to the more familiar products - soap, gasoline, etc. Throughout the manuscript emphasis should always be on the worker rather than on the process.

You are probably planning a table of contents and an index which would increase the usefulness of even a short manuscript of this type. The National Vocational Guidance Association has always stressed the value of an accompanying statement or foreword giving the sources of information on which a manuscript is based and the method of research used in its preparation. Since in vocational literature there is so much reproducing of old material (some of it erroneous) without the use of new sources, the indication of sources is especially desirable on statistical material, on number of workers, earnings, etc. and in regard to material on which a difference of opinion may exist.

Dr. Leonard Carmichael September 2, 1944

As I read through the manuscript I noted in the margin a few spots where quoted sources would be especially valuable or where additional information might be introduced. In one or two other places I have similarly indicated statements which I questioned on the basis of former contacts in the engineering field. Since these contacts are not at all recent my impressions may be entirely wrong but I have indicated them since a further check with authorities in the fields in which the statements fall may be desirable.

I hope that we have not kept the draft too long and that you will find these comments useful.

Yours sincerely,

MWZ:pao

Marguerite W. Zapoleon,(Mrs. L. B.)
Labor Economist

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

August 25, 1944

NATIONAL ROSTER OF
SCIENTIFIC AND SPECIALIZED PERSONNEL

IN REPLY PLEASE REFER TO
FILE WMPR:SART:rms
REGISTRATION No.

Mrs. Marguerite Zapoleon
Women's Bureau
Department of Labor
Washington 25, D.C.

Dear Mrs. Zapoleon:

Enclosed is the draft of the vocational monograph on chemistry which has been prepared in the Roster. It is the first tentative draft of a monograph in a proposed series on the professional fields to be prepared for the use of young people attempting to decide on a career and course of training through the guidance facilities of the United States Employment Service, Veterans' Administration, the Army, the Navy, and educational institutions. The program is particularly aimed at having this material ready for use during the demobilization and reconversion period.

We would appreciate having your specific criticisms and comments on content, manner of presentation, and completeness of the material. As we are attempting to set an early publication date, we would greatly appreciate hearing from you as soon as you find it convenient to review the monographs. Your cooperation in this matter will be of real assistance to us.

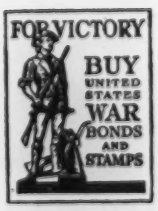
Sincerely yours,

Leonard Carmichael

Leonard Carmichael
Director, National Roster

Enclosure

File



War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

NATIONAL ROSTER OF
SCIENTIFIC AND SPECIALIZED PERSONNEL

September 6, 1944

IN REPLY PLEASE REFER TO
FILE WMPR:ART:rms
REGISTRATION No.



Mrs. Marguerite W. Zapoleon
Labor Economist
U.S. Department of Labor
Women's Bureau
Washington 25, D.C.

Dear Mrs. Zapoleon:

You have been most kind to review one of the first proposed Roster monographs for vocational guidance. Your criticisms and those given to us by others, will be of material help to the staff working on this project, and will enable them to prepare a description of the field more closely meeting the needs of those for whom it is designed.

I would like to add my personal thanks to those of the staff which is working on this project, for your generosity in giving both time and effort to the matter.

Sincerely yours,

Leonard Carmichael

Leonard Carmichael
Director, National Roster



War Manpower
file copy

August 23, 1944

Mr. Marion Gregg, Director
War Manpower Commission
11 West Monument Street
Dayton, Ohio

Dear Mr. Gregg:

It was some months ago that I called to inform you of the postwar survey being made in the Dayton area for the Women's Bureau. The material is now being compiled and analyzed in our Washington office.

We were interested in two of the local studies which you spoke of at that time. I presume the postwar poll planned by the Dayton District Development Committee to be conducted by the Public Opinion Institute, and also the one or two questions which had bearing on postwar plans which were to be included in the school census this spring have been completed. It would be most helpful to our office to have any of the results of these studies with which to check our material. I am writing to ask if you can see that any of the findings of these studies can be forwarded to us.

May we also have another copy of the pamphlet which your office published last year on "A Critical Area Faces Its Future"?

We hope to have the results of our work in Dayton completed in the near future and will see that you receive a copy.

Sincerely yours,

Eloise M. Ewing,
Labor Economist

EME:ml

War Manpower

August 19, 1944

Miss Anne Little Brandes
Women's Employment Specialist
War Manpower Commission
1164 Penobscot Building
Detroit 26, Michigan

Dear Miss Brandes:

The only leaflet the Women's Bureau has issued to aid in recruiting women for essential civilian industries is enclosed, and on the back panel "bus driver" and "trolley motorman" are included in the list of essential civilian industries.

We are referring your request to Miss Dorothy Sells in the office of Defense Transportation, for recruiting material issued there, directed to women.

Sincerely yours,

Frieda S. Miller, Director

FSM/am

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

1164 PENOBSCOT BUILDING
DETROIT 26, MICHIGAN

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

OFFICE OF THE
STATE DIRECTOR

1164 Penobscot Bldg.,
Detroit 26 Michigan
August 11,1944

Miss Mary Anderson;
Attention Miss Miller
Women's Bureau
U.S.Department of Labor
Washington,D.C.

My Dear Miss Miller; Mrs.Lowrie tells me you have a new booklet or release of some sort on the work you have done on assisting public transportation systems to take on women street car and coach drivers. In Detroit our D.S.R' has been slow to use women. For some months they have been using them on street cars but only now are willing to try them on the buses. We are having difficulties in trying to get women drivers for them. Their program is very faulty. I would appreciate a copy of the material of which Mrs.Lowrie spoke. She intended to get it to me but has left for her vacation in Northern Michigan without doing so.

Very Sincerely,
Anne Little Brandes
(Anne Little Brandes)
Women's Employment Specialist
War Manpower Commission.

WOMEN'S BUREAU
AUG 12 1944
DEPARTMENT OF LABOR

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

WASHINGTON

August 18, 1944

To: Miss Miller
From: Alice Angus

Re: WMC Designation of Laundries as "locally needed activities".

Attached is WMC release of June 30, 1943, which authorizes Regional WMC Directors to classify laundries as "locally needed", and sets out the standards which laundries must meet to obtain this classification. WMC release of Sept. 10, 1943, forwarded by the Solicitor's Office, describes the general standards which establishments must meet in order to be so classified, but makes no reference to the specific standards which were established for the laundry industry.

The recommendation in the second paragraph of the Solicitor's memorandum of August 12, 1944, also attached, does not seem to me to meet the needs of the present situation. The memorandum suggests that, "If the laundries in the District are engaged in undesirable practices not proscribed...., it would seem that WMC could prescribe additional standards...". The difficulty in the present Washington laundry situation is not that the standards under which laundries are entitled to a "locally needed" classification are inadequate, but that the WMC has adopted a nation-wide Controlled Referral Plan, effective July 1, 1944, which provides, first, for absolute control of hiring, and second, for designation by USES of employer groups authorized to perform that function on behalf of USES. Since the WMC has authorized Regional Directors to bring all women workers in their areas under the same Controlled Referral arrangement, if desirable, an arrangement where the employer association controls hiring, as in the Washington laundries, may conceivably set up for any or all industries in certain areas, not merely for "locally needed" activities.

[illegible]es - WMC-760

Return to Angus

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

For Immediate Release
Wednesday, June 30, 1943

PM-4410

The nation's laundries, many of which are faced with critical manpower shortages, were extended aid today by the War Manpower Commission and the Office of Civilian Requirements of the War Production Board.

Regional directors of the War Manpower Commission were authorized in instructions sent them to classify laundries as "locally needed" and hence eligible for the same preferentail treatment now accorded essential war industries under stabilization plans now in operation throughout the country. This includes referral of workers by the U. S. Employment Service, protection from labor piracy and stabilization of their existing labor force, but does not provide for occupational deferment under the Selection Service Act. At the same time laundries were called upon to discontinue luxury services.

Under the instructions sent the Commission's Regional Directors, laundries may be classified as "locally needed" activities if and when they have met standards agreed upon by the Office of Civilian Requirements and the War Manpower Commission.

These standards, the result of studies instituted several months ago by the WMC and the Office of Civilian Requirements in consultation with all brenches of the textile maintenance services, are designed to accomplish two purposes: 1. to put the textile maintenance services on a rock bottom, first-things-first basis; 2. enable them to give adequate essential service to more people than they are now doing with the labor force they have or are likely to get in view of overall requirements.

Standard which laundries, cleaners, linen supply and similar services must meet before they can be classified as "locally needed" follow:

Power laundries shall:

1. Establish the following maximum family laundry services:

   a. Wet wash (shirts finished upon request)

   b. Semi-finished or rough dry (flat work machine finished; wearing apparel dry or damp, and ready to iron; and shirts finished upon request)

   c. Press or family finish (flat work machine finished; wearing apparel straight machine pressed; and shirts finished)

2. Establish the following maximum commercial laundry services:

   a. Flat work (bed, bath, table, and kitchen linen)

   b. Laundering of protective work clothing
      (1) Sanitary clothing machine finished
      (2) Industrial clothing and wipers rough dry

(Over)

X-17496

3. Increase the efficiency with which existing personnel is used by making the following adjustments in services and operations:

(Ironing)

a. Eliminate the hand ironing or finishing of any garment except where no mechanical facilities are available.

b. Discontinue retouching of all flat work.

c. Discontinue retouching of wearing apparel by hand after pressing, except for bare minimum required to make outer wearing apparel presentable.

d. Discontinue ironing of all articles that have been dry tumbled.

(Starching)

e. Eliminate all starching or sizing on damp, wet and semi-finished services unless such starching or sizing is done in the wash wheel as a part of the washing process.

f. Eliminate all starching or sizing of flat work.

g. Limit customers to one grade in the starching of wearing apparel and shirts.

(Packaging)

h. Discontinue the use of shirt boards, shirt envelopes, cellophane wrappings, and tissue box linings.

i. Discontinue the fancy packaging of handkerchiefs, socks and soft collars.

j. Eliminate all other superfluous wrapping and packaging.

(Folding)

k. Discontinue the folding of any portion of a damp or wet wash bundle and of the wearing apparel in thrifty and rough dry bundles.

l. Provide standard folding only of all finished flat work.

(General)

m. Discontinue the rebinding of blankets, except where such rebinding is necessary to preserve the life of the blanket.

n. Conform, in their linen supply business, with the same standards adopted by "locally needed" linen supply houses.

4. Cooperate in public appeals for consumers' economy in the use of laundry services as follows:

   a. Request hotels, boarding and lodging houses, and tourist camps, homes and courts to reduce their requirements for laundry services by:

      (1) Changing bed linen no more often than once a week for any one guest.

      (2) Limiting guests to one face towel and one bath towel every day.

      (3) Minimizing the use of table linens in dining rooms. An average of no more than one tablecloth per table per meal period should be suggested.

   b. Request railroad accounts to eliminate the use of linen towels and to minimize the use of table linen.

   c. Request restaurants to minimize the use of table linen. An average of no more than one tablecloth per table per meal period shall be suggested.

   d. Request housewives and other users of laundry services to:

      (1) Reduce the use of articles that require laundering.

      (2) Discontinue sending small pieces which can easily be done at home.

      (3) Avail themselves of home laundry services wherever it does not interfere with their productiveness in a war job.

      (4) Use wet wash or semi-finish laundry services wherever possible.

      (5) Pre-sort, segregate, and otherwise prepare outgoing laundry bundles in accordance with instructions designed to effect manpower savings in sorting and marking.

5. Take the following steps in the reduction of labor required for pick-up and delivery service:

   a. Establish non-overlapping delivery zones.

   b. Institute a seven-day delivery schedule to household accounts for semi-finish or rough dry and for press or family finish laundry service; that is, simultaneous pick-ups and deliveries once a week in any zone (route).

   c. Institute a not more rapid than 48-hour delivery schedule to household accounts for damp or wet wash laundry service.

d. Eliminate all special pick-ups and deliveries, except to hospitals and the armed forces of the United States, and except where in emergencies, such special deliveries, and pick-ups are necessary for the protection of the public health, life and safety.

e. Eliminate all call-backs except in extenuating circumstances, such as are cited in "d" above.

f. Comply with O.D.T. Order No. 17 and with all other orders of the O.D.T. governing local delivery carriers.

g. Make concerted effort to reduce the number of overlapping territories as between laundries to a minimum by interchanging customers.

6. Extend hours of operation or instituted a multiple shift plan, wherever feasible, so as to maximize the utilization of existing equipm

7. Indicate a willingness to accept and serve new accounts or to release old accounts, as may be required to maximize the utilization of available manpower, but at the same time engage in no solicitation of new accounts.

These standards, officials said, do not curtail the variety of services which laundries, cleaners, linen supply and other textile maintenance services furnish but they do eliminate frills.

Commenting on the laundry situation, Paul V. McNutt, War Manpower Commission Chairman said:

"The laundry problem is not an over-all national problem. Like other manpower problems it differs from region to region, area to area. As such, specific questions relating to it must be answered in the area and regional offices in the localities where the problems arise."

STANDARD FORM NO. 64

Office Memorandum · UNITED STATES GOVERNMENT

TO : Miss Miller DATE: August 17, 1944.

FROM : Alice Angus

SUBJECT: WMC Labor Control Policies as they Affect Women Workers

Background:

The Washington Star of July 31, 1944, describes the new set-up under which the Laundry Owners Association controls the hiring of laundry workers. The plan was worked out in cooperation with WMC under its newly-announced control-of-hiring policy which requires all hiring to be done through WMC "or such channels as it may designate." Of major importance is the fact that the new control-of-hiring policy was super-imposed on an elaborate structure of existing labor controls which begin with the requirement that a worker before he can change jobs, must obtain a "certificate of availability", or a release, from his former employer. The grounds on which releases are granted are extremely limited in number and afford the worker little opportunity to improve his wage rate or employment status. Moreover, until recently a worker who sought employment in another city required not merely one certificate of availability but three.

In order to promote the most effective use of manpower in a war period, it is admittedly necessary to limit the right of workers to change jobs. The dangers inherent in wartime labor control policies lie not so much in the fact of control as in the failure to provide adequate procedural safeguards to insure the worker against unnecessary hardship or discriminatory treatment. WMC labor control policies have developed on an experimental basis and certain policies originally established without proper employee safeguards have been revised to afford greater protection to the worker. Notwithstanding WMC revision of specific parts of its labor control program, it is noteworthy that WMC general overall policy in the war period has been to direct sanctions against the worker, not against the employer.

WMC labor control policies undoubtedly affect women workers as a group more severely than they do men. Large numbers of women are both concentrated in the low-wage industries and lacking in adequate union organization. As a result of this combination of factors, women workers have greater need than men to improve their employment status by moving on to better-paid jobs during the war period, and at the same time they are more subject to discriminatory treatment because they more often lack the services of a union as an "advocate" to represent them.

WMC Wartime Labor Control Policies

Three aspects of WMC labor control policies resulting in inequities to women workers have come to my attention: (1) controlled referral plans; (2) policy governing issuance or denial of releases; (3) substandard wage rate policy.

1. Controlled referral plan

Under WMC "controlled referral" plan effective July 1, 1944, all male labor must be hired through USES, or its designated agencies, including employers and union hiring halls. WMC at the same time authorized Regional Directors to extend the system to women in their own areas if necessary under local conditions. According to a recent WMC release; the controlled referral system has been applied to women in some communities in the following Regions: Region I (New England States); Region II (New Jersey, Pa., Del.); Region IV, including D. C. women released from essential and locally needed activities only.[1] Region V (Ohio, Mich., Ky.); Region VII (Southeastern Atlantic Coast States); Region XII (West Coast).

A copy of the revised Employment Stablization Program for the Washington, D. C. area, effective July 1, 1944, is attached. According to this program, p. 3, no employer may hire any worker in the Washington area "except upon referral by, or in accordance with arrangements approved by the USES of the WMC." The statement of availability which is printed on the back page of this program shows three alternative methods of job referral, of which the second is "He may be employed only upon referral by (authorized agency)". Where this block is checked by the employer making out the statement of availability, the worker must apply for another job to the authorized agency - which may be an employer's association - instead of to USES.

Area WMC in Washington, D. C. has designated the Laundry-Owner's Association as the agency authorized to control referrals of workers to laundries in the Washington area. On August 14, I talked by telephone with Mr. Kutner, representative of the Amalgamated Clothing Workers-CIO, which has organized some of the laundry workers in the District. Mr. Kutner said that the Laundry-Owner's Association has a system by which each member laundry pays 5 cents per worker per month toward maintaining a card catalogue system listing the names and social security numbers of all workers in participating plants. When a worker is discharged, the reason for discharge is listed whether or not the employer gives the worker a certificate of availability. He said the laundry owner's association was indicted for a similar practice in 1926 as a violation of the anti-trust act, but it was now able to do under Government auspices what it could not do independently.

Mr. Kutner said the union is uncertain what action to take on this. The laundry workers are very poorly organized. He has tried to organize them by getting higher rates for union laundries from WLB. The substandard rate for laundries in the District is

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[1] On June 30, 1943, WMC authorized Regional Directors to classify laundries as "locally needed activities". Laundries in the Wash.,D.C., area were so classified.

40 cents, but union laundries get 45 cents in their contracts. Mr. Kutner said, No union laundry works over 48 hours a week, and he did not know of any laundries working longer hours.

The dangers inherent in an arrangement of this kind are obvious. In the present period of labor scarcity, laundry employers probably have little temptation to blacklist individual workers, but they are building up valuable records which will enable them to carry on such a practice independently when conditions change.

2. Policy governing Releases.

Sometime before WMC adopted a nation-wide policy governing certificates of availability, or releases, area manpower directors in various regions, were approving voluntary arrangements between employers by which they agreed to use "quit slips" to control the transfer of workers. In the fall and early winter of 1942, the Women's Bureau received a number of letters from women workers in New Jersey describing the hardships they were undergoing because of this practice. Such letters stated that USES had refused to refer them to new jobs unless they first obtained a "release" from their former employers. Employers often refused to issue releases, while USES did not itself issue releases or take any action with respect to the employer. These letters said in effect that if a woman worker gave up a job without first obtaining a release and her former employer then refused to give her a release, she was forced to remain unemployed indefinitely; at the same time, she was not eligible for unemployment compensation because she was deemed to have voluntarily left her employment without good cause.

At a conference on January 20, 1943 between WMC officials, Miss Christman and myself, WMC officials admitted that some abuses had existed under the voluntary plans then in effect and discussed with us the principal provisions of an overall employment stabilization program then in draft form. The new plan, which was later released, attempted to correct earlier abuses by setting up objective criteria for determining a worker's right to a release from his employer and by making it possible for the worker to get a release from USES in certain cases if his employer refused to grant it. The program provided that "insofar as it will not interfere with the effective prosecution of the war, no worker shall be obliged to accept or continue in employment which is not suitable." It set forth certain definite criteria for determining "suitable work", among which was a determination as whether the employment offers wages, hours, or working conditions, which are substantially as favorable as those prevailing for similar work in similar establishments in the area.

The original Employment Stabilization Program, as well as subsequent ones provided for an appeal by a worker refused a certificate of availability. Provision for appeal is required by

Executive Order 9279 of December 7, 1942, authorizing USES to control employment. Instead of setting up independent appeal tribunals, WMC has delegated this function to Management Labor Committees in ~~this~~ each area, composed of an equal number of employer and labor representatives. We do not know how these groups have functioned with respect to appeals from women workers. However, from the standpoint of women workers who are not organized there would appear to be no particular advantage in having a tri-partite set-up since the labor representatives frequently may come from unions of which women are not members or which are even antagonistic to women.

The importance not only of speedy action on an appeal but also of a fair hearing before a tribunal sympathetic to women's interest can scarcely be overestimated in the view of the fact that under present WMC regulations a worker who does not have a certificate of availability is prohibited from getting another job for a period of 60 days from the time of leaving the employer. Where the employer refuses to issue a certificate and USES supports the employer's action, the worker's only recourse is through the Management-Labor Committee. Moreover, quite aside from considerations as to whether the present appeal set-up is well designed to function smoothly, the advisability in a period of labor scarcity of a 60-day unemployment period as a penalty against the worker is itself open to question.

3. Substandard Wage Rates.

The question of whether the payment of substandard rates justifies a worker in changing jobs and hence may be the basis for granting a release either initially by the employer or later by USES is one of particular interest to women workers. Notwithstanding the need for stabilizing employment during a war period, no woman worker should be required to remain at a job which pays less than a living wage. However, until recently, WMC has had no consistent policy on this subject. During much of the time its policy has been detrimental to the interests of women workers. There has also been considerable divergence in practice at the Regional level.

The fact that payment of "the prevailing rate" was included in the criteria established as a basis for determining suitability of work in the January 1943 Manual of Operations indicated that wage rates were to be considered as one factor in justifying the granting or refusal of releases. However, the Manual established no policy for substandard rates as such, notwithstanding that in some localities the prevailing rate in some industries, such as the laundry industry, might conceivably be substandard.

In at least two regions - Region V and Region VIII - the Regional Employment Stabilization Plans were set up to provide for issuance of certificates of availability (i. e. releases) on the ground that wages were below the prevailing rate. Thereafter, in April 1943, WMC in Washington issued new regulations which specifically stated that no certificate of availability shall be granted solely on the ground that the employee's wage rate is substantially less than that prevailing in the locality for the same or similar work. Region V and Region VIII thereupon eliminated the provisions from their earlier plans permitting issuance of releases on the ground that wages are less than the prevailing rate. Region V, however, substituted a provision for granting transfer certificates "where wages are substandard as defined by the War Labor Board."

In July, 1943, Region IX announced a new region-wide employment stabilization plan which permits transfers from essential or critical jobs paying less than WLB determined going rates if the employer fails to ask the WLB for an adjustment within a reasonable period of time. Shortly thereafter, the policy adopted in the Region IX plan was promulgated by the WMC in Washington. The new policy went much farther than the "prevailing rate" standard established in the original Employment Stabilization Plan. It placed the burden on the employer to petition the WLB for permission to make a wage adjustment if he wanted to hold his employees with the assistance of the WMC. In addition, it authorized transfers not merely if the worker was employed at less than the prevailing rate but at a wage or salary "below the level established by the WLB as warranting consideration for an adjustment." Express reference to the WLB rate served to set up an objective criterion which would help to clarify worker's rights under the new WMC policy.

The effect of the revised WMC policy may be shown by the experience in the D. C. area. The Philadelphia WLB which covers the Washington-Baltimore WLB area as well, had previously decreed that 50 cents an hour was the substandard wage rate for the area. According to the August 16, 1943, Post, the area WMC originally interpreted the regulation as meaning that they could not recruit workers for District laundries for less than 50 cents an hour. However, the situation was straightened out by a WMC interpretation to the effect that 40 cents - the general WLB standard for determining substandard rates - would be considered substandard for recruiting purposes.

Future Outlook:

Experience under WMC wartime labor control policies cearly indicates a need for closer cooperation, on both the Federal and Regional levels, between the WMC, as the agency responsible for establishment of employment policies, and the Women's Bureau, as the agency responsible for promoting the welfare of women workers. Regardless of how labor control policies are modified at the end of the war, the need for such cooperation will be intensified. It is

inevitable that women workers as a group will face special employment problems in the reconversion period. With the eventual reabsorption into industry of 10 million men now in the armed forces, women will experience intense competition for jobs and will have more limited opportunities for employment. Unless aided by farsighted Government policies, they are apt to be relegated into marginal industries and forced to accept jobs at substandard rates. There is need for the development now of policies that will assure women workers adequate opportunities for employment after the war in work that is both suitable and that pays a living wage.

Government policies as to the suitability of work for women are of special, immediate, importance in preparation for the reconversion period. Policies as to whether work is suitable affect not only women's opportunities for referral to desirable jobs but also their right to unemployment compensation where the work offered is not acceptable. During the war the Women's Bureau has made an exhaustive study of the types of war jobs that women can fill. There may be need for more work along this line in the reconversion period, if the change-over results in the development of new industries and new jobs. Many additional factors apart from the nature of the work, however, must be taken into account in determining suitability: wages, hours, working conditions, and even accessibility of transportation enter into the picture. Unemployment compensation appeal tribunals in some States have held that such factors are determinative in individual cases, but no consistent policy has been followed. Moreover, during the war, USES in some areas has taken the position that no workers will be referred to an employer whose work pays less than the WLB substandard rate.- indicating the possibility of developing a continuing, more inclusive policy on the subject of a living wage.

In the reconversion period it will become increasingly important both to establish broad overall employment policies to safeguard the welfare of women workers, and to work out definite procedural criteria which will facilitate the equitable application of such policies. The Women's Bureau can contribute to the development of such policies and procedures, and should have an effective working relationship with USES and any other Government agencies which are responsible for labor control and placement.

Card File System Cuts Turnover in Laundry Labor

Star July 31 '44

Association Checks Claims of Workers on Leaving Essential Jobs

A new system of cutting down labor turnover in laundries by checking up on every job-seeking laundry worker has gone into effect here by arrangement with the area War Manpower Commission, it was learned today.

Turnover has been blamed for irregular schedules and failures to get shirts and sheets back to owners on time.

Disclosing the new system, by which the Laundry-Dry Cleaning Owners' Association acts as a clearing house, George Walker, association executive secretary, said that "WMC is forcing us to do something that would have been invaluable to us for 20 years."

Close Registry Secured.

Mr. Walker explained that workers have been moving from job to job merely by signing statements saying they hadn't worked in an essential industry for the last 60 days.

The association now has a record of the names and social security numbers of all employes in the participating plants. The laundries also send in the names of those who have quit and why. A card for each employe is on file at association headquarters.

If a worker has signed a statement saying he or she hasn't worked in an essential industry for 60 days and cards show the worker had left another job just a few days previously, the new employer discharges the worker.

Two Alternatives Open.

The worker then is either sent back to the plant where he or she was formerly employed or to the United States Employment Service Mr. Walker explained.

Since the system started 10 days ago, Mr. Walker said, a number of workers already have been caught singing false statements.

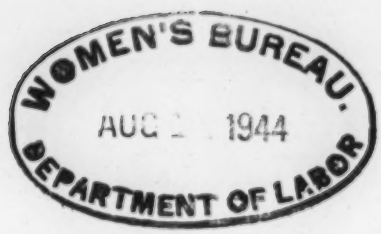
Mr. Walker said 29 plants, including all but one of the large establishments, are now co-operating in the program and 16 others have agreed to take part.

DEPARTMENT OF LABOR

OFFICE OF THE SOLICITOR

WASHINGTON 25

AUG 12 1944



Memorandum

To: Miss Frieda Miller

From: William S. Tyson

Subject: WMC Field Instruction No. 2

In accordance with your telephone conversation with Peter Seitz I am annexing Field Instruction No. 2 of the War Manpower Commission which sets forth the standards with which establishments must comply in order to qualify as being engaged in activities "locally needed," and thereby being entitled to the same status as establishments engaged in essential activities under employment stabilization plans and programs based on Executive Order 9328.

If the laundries in the District are engaged in undesirable practices not proscribed by the provisions of this Instruction, it would seem that the War Manpower Commission could prescribe additional standards calculated to terminate such practices and require compliance with those standards before a "locally needed" designation is made by the Area Manpower Director.

Attachment

WAR MANPOWER COMMISSION
Washington 25, D. C.

In reply
refer to WMRX

WMC Field Instruction No. 2
September 10, 1943

To: All Regional Manpower Directors -

Subject: Designation of Locally Needed Activities in a War Manpower Commission Area (Revision of former Field Instruction No. 15 as of May 25, 1943)

I. Purpose

A. Facilities for serving the minimum needs of the community are extremely important to the maintenance of working efficiency. These local activities may require the same recruitment and placement services as the activities classified in the national List and Index of Essential Activities.

II. Designation

A. When the Area Manpower Director finds that a trade or service, primarily local in character, is required to maintain services necessary to the health, welfare, and safety of the area or services necessary for conduct of essential activity, and that it cannot meet the necessary minimum demand for its services without the special protection provided for in section II-B of this instruction, he may designate it as a "locally needed" activity.

B. The designation of an activity as "locally needed" gives it the same status as an essential activity under Employment Stabilization Plans and under any program based on Executive Order 9328. It also permits the local Employment Office to give it the same priority of service as is accorded to essential activities. This determination, however, does not affect the status of an activity insofar as the Selective Service System is concerned.

III. Coverage

A. When an activity is designated as "locally needed," such designation shall cover only those establishments in which this activity is the principal activity and which have been determined by the Area Manpower Director to be in compliance with the following standards:

1. All War Manpower Commission policies are being observed, including the full utilization of all local sources of labor supply, the setting of hiring specifications at the minimum necessary to assure adequate job performance, employment of workers at their highest skills, and the up-grading of trainable employees.

2. Operation on a minimum wartime work-week as defined in Section 4 of War Manpower Commission Regulation No. 3.

3. Wages paid to workers engaged in the activity are not less than the rate established for the region or area by the War Labor Board as necessary to avoid substandards of living. If no such rate has been set and approved, the activity must be paying wage rates at least equal to 40 cents an hour.

4. Males between the ages of 18 and 44 inclusive shall be hired only upon referral by or with the approval of the United States Employment Service, except that Regional Directors may provide for specific exemptions.

5. All special or "luxury" services have been suspended. (Standards for the determination of these services are now being developed for certain local activities, and will be forwarded to Regional Manpower Directors as they become available.)

B. Whenever the Area Manpower Director determines that an establishment covered under an activity designation is not complying with the standards listed in section III-A, he shall cancel the coverage of the establishment.

IV. Determination of Compliance

A. The Area Manpower Director may require that establishments in activities designated as "locally needed," which are covered or are seeking coverage, submit from time to time a written statement indicating compliance with the criteria listed in section III-A.

V. Action Necessary

A. Designation of an activity as "locally needed" shall be made by the Area Manpower Director subject to the approval of the Regional Manpower Director.

B. Three copies of the notification of approval of such designation, including the area and activity concerned, the effective date and the standards set in accordance with section III-A, shall be submitted by the Regional Manpower Director to the headquarters office within seven days of such approval.

C. An immediate review shall be made of all activities that have been designated "locally needed" in order that coverage may conform to paragraph II-A, and of all establishments engaged in activities designated as "locally needed." Any activity which does not conform to the standards set forth in section II-A shall no longer be entitled to designation as a "locally needed" activity, and any establishment which does not meet the standards set forth in section III-A shall no longer be entitled to coverage under the designation of its activity.

D. If, in the opinion of the Regional Manpower Director, an activity other than a trade or service should be designated as a "locally needed" activity, a complete factual statement in support of the necessity for such action shall be submitted to the Executive Director, and only after his approval shall such designation be made.

Initiated by:

/s/ William Haber
Assistant Executive Director
for Program Development



/s/ J. H. Bond
Deputy Executive Director

EMPLOYMENT STABILIZATION PROGRAM

for the
WASHINGTON, D. C. AREA
REVISED, EFFECTIVE JULY 1, 1944

WOMEN'S BUREAU
JUL 12 1944
DEPARTMENT OF LABOR

I. OBJECTIVES

In furtherance of the war effort the Area Director of the War Manpower Commission for the Washington, D. C., Area with the concurrence of the Area Management Labor Committee has adopted the following program. The purpose of the program is to eliminate wasteful labor turnover, to reduce unnecessary migration by encouraging the full use of local labor, to direct scarce labor where most needed in the war program, and to obtain the maximum utilization of the manpower resources under standards protecting the rights of all concerned.

II. DEFINITIONS

As used in this employment stabilization program:

A. Area Covered is the Washington, D. C., Area comprising the District of Columbia, Montgomery and Prince Georges Counties in Maryland, Arlington and Fairfax Counties and the City of Alexandria in Virginia.

B. Essential Activity means any activity included in the War Manpower Commission List of Essential Activities.

C. Locally Needed Activity means any activity duly approved by the Area Manpower Director or the Chairman of the War Manpower Commission as a locally needed activity.

D. Locally Needed Establishment means any establishment designated specifically by the Area Director as a locally needed establishment.

E. State includes Alaska, Hawaii, and the District of Columbia.

F. Agriculture means those farm activities carried on by farm owners or tenants on farms in connection with the cultivation of the soil, the harvesting of crops, or the raising, feeding or management of livestock, bees and poultry, and shall not include any packing, canning, processing, transportation or marketing of articles produced on farms unless performed or carried on as an incident to ordinary farming operations as distinguished from manufacturing or commercial operations.

G. Employer means any person, firm, corporation or the Federal Government who employs persons for consideration except as indicated in "Exclusions." Under this definition the Civil Service Commission represents the Federal Government as an employer insofar as positions subject to the Civil Service Act and Rules are concerned.

H. Referral means a statement issued by the United States Employment Service of the War Manpower Commission sending a worker with his consent to a specific job with a specific employer, for consideration of hiring by such employer.

J. New Employee means any individual who has not been in the employment of the hiring employer at any time during the preceding 30-day period. For the purpose of this definition, employment of less than seven days' duration and employment which is supplemental to the employee's principal work shall be disregarded.

K. The terms employment and work as applied to an individual engaged in principal and supplementary employment means his principal employment.

L. Locality means the Area as stated in IIA above. For purposes of railroad employment, locality means the railroad operation division.

M. Record of Prior Employment is a written certification by an applicant for employment containing the name and location of each employer for whom he has worked during the 60 days preceding such application, his occupation and the date of separation from his employer.

N. Solicitation means the initiation of contract with an individual orally or through written or published communication for the purpose of inducing him to accept employment. The furnishing of employment by an employer or his agent to individuals who voluntarily and without solicitation make inquiry is not deemed to be soliciting.

O. An Employment Ceiling is the highest level of total employment or of specified types of employees which an establishment is not permitted to exceed, based upon an approved necessary production schedule. Ceilings may be established to:

1. Permit employment expansion
2. Maintain employment at present levels; or
3. Reduce the employment level.

The employment ceiling is subject to change as production schedules change.

P. A Manpower Allowance represents an administrative determination of the number of employees or specified types of employees, within the ceiling, which an establishment is currently not permitted to exceed and is used as the means for the current allocation and referral of available labor. This manpower allowance is subject to change as supply factors in the labor market may warrant.

Q. Priority Referral is a program which provides that employers, except agricultural employers, may hire workers referred by the United States Employment Service of the War Manpower Commission or in accordance with arrangements approved by the United States Employment Service of the War Manpower Commission, so that workers may be referred to jobs in the order of the relative importance of those jobs to the war effort.

III. CONTROL OF HIRING AND SOLICITATION OF WORKERS

All hiring and solicitation of workers in, or for work in, the Washington Area shall be conducted in accordance with this Employment Stabilization Plan.

IV. HIRING PROCEDURES

A. No employer shall hire any individual in, or for work in, the Washington Area except upon referral by, or in accordance with arrangements approved by the United States Employment Service of the War Manpower Commission.

B. The Area Manpower Director may fix for all or any establishments in the Washington Area, fair and reasonable employment ceilings and allowances, limiting the number of employees or other specified types of employees which such establishments may employ during specified periods. The basic factor in determining such ceilings and allowances will be the relative urgency of the establishment's production or services required for the prosecution of the war or for community wartime needs. Other considerations will be the labor needs of the establishment and the available labor supply. Except as authorized by the Area Manpower Director, no employer shall hire any new employee for work in such establishment if the hiring of such employee would result in such establishment's exceeding the employment ceiling or allowance currently applicable to it.

C. A new employee whose last regular employment was in agriculture and who is to be hired for non-agricultural work shall be hired only upon referral by or in accordance with arrangements approved by the United States Employment Service of the War Manpower Commission. No such individual shall be referred to non-agricultural work, except after consultation with a designated representative of the War Food Administration, and provided that such an individual may be hired for non-agricultural work for a period of not to exceed six weeks without referral.

D. Employers shall retain and file statements of availability, referral cards, and records of prior employment, and shall make them available for inspection upon request by a representative of the War Manpower Commission.

V. ISSUANCE OF STATEMENTS OF AVAILABILITY BY EMPLOYERS

A statement of availability shall be issued promptly to an individual when any of the circumstances set forth below is found to exist in his case.

An individual whose last employment is or was in an essential activity or a locally needed establishment shall receive a statement of availability from his employer when:

A. He has been discharged, or his employment has been otherwise terminated by his employer, or

B. He has been laid off for an indefinite period, or for a period of seven or more days, or

C. Continuance of his employment would involve undue personal hardships, or

D. Such employment is or was at a wage or salary or under working conditions below standards established by State or Federal law or regulations, or

E. Such employment is or was at a wage or salary below a level established or approved by the National War Labor Board (or other agency authorized to adjust wages or approve adjustments thereof) as warranting adjustment, and the employer has failed to adjust the wage in accordance with such level or to apply to the appropriate agency for such adjustment or approval thereof.

VI. REFERRAL OF WORKERS BY UNITED STATES EMPLOYMENT SERVICE

A. If the employer fails or refuses to issue a statement of availability the United States Employment Service of the War Manpower Commission, upon finding that the worker is eligible for referral, shall refer the individual to employment in accordance with the provisions of this program.

B. The United States Employment Service of the War Manpower Commission may refer any individual in the employ of an employer whom the War Manpower Commission finds, after notice, hearing, and final decision, has not complied with any War Manpower Commission employment stabilization program, regulation, or policy, and for so long as such employer continues his non-compliance after such finding.

C. If an individual is employed at less than full time, or at a job which does not utilize his highest recognized skill for which there is a need in the war effort, the United States Employment Service of the War Manpower Commission may, upon his request, refer him to other available employment in which it finds that the individual will be more fully utilized in the war effort.

D. The issuance of a referral card by the United States Employment Service of the War Manpower Commission shall constitute a certification that the employee is eligible under War Manpower Commission regulations and this program for employment to which he is being referred and there shall be no obligation on the new employer to inquire with respect to said eligibility.

E. A worker seeking referral to employment under any circumstances except where he has been laid off or discharged from his last employment by his employer, shall be urged to remain on his job until the statement is issued by his employer or referral is made by the United States Employment Service of the War Manpower Commission unless remaining on the job would subject him to undue personal hardship.

VII. SPECIAL HIRING PROVISIONS

A. Railroads, and other employers subject to the Railroad Retirement Act or the Railroad Unemployment Insurance Act, shall hire new workers who have not worked (or resided, if not previously employed) within the locality of the new employment in the 30 days preceding such hiring

only through the Railroad Retirement Board's Employment Service. All orders for such workers shall be cleared by the latter agency with the United States Employment Service of the War Manpower Commission before recruiting from outside the area is undertaken.

B. Since appointments to the Departmental Services of the Federal Government in Washington, D. C., are required by law to be apportioned among the several states, the Civil Service Commission is not required to secure clearance from the United States Employment Service of the War Manpower Commission before recruiting outside the area to fill such positions, and persons recruited to fill such positions may be hired without clearance from the United States Employment Service of the War Manpower Commission in this area. However, the provisions of any employment stabilization program in effect in the area from which the person is recruited will be complied with. Hiring by departments and agencies of the Federal Government for positions which are subject to the rules and regulations of the United States Civil Service Commission, which, so far as is consistent with the laws under which it operates, shall conduct its recruiting activities and make referrals in accordance with the War Manpower Commission's policies, procedures, and standards. The provisions of this plan shall not be applicable to transfer between agencies of the Federal Government. Except as indicated the Civil Service Commission shall clear its job openings with the local United States Employment Service of the War Manpower Commission office before recruiting outside the area. The District of Columbia Government shall conform with the provisions of this program insofar as positions subject to the Civil Service Act and Rules and the Joint Regulations are concerned.

C. The War Shipping Administration shall conduct its recruitment activities and make referrals in accordance with the War Manpower Commission's policies, procedures, and standards.

VIII. EXCLUSIONS

No provisions of this employment stabilization program shall be applicable to:

A. The hiring of a new employee for agricultural employment;

B. The hiring of a new employee for work of less than seven days' duration, or for work which is supplementary to the employees' principal work, but such work shall not constitute the indivudual's "last employment" for the purposes of the program, unless the employee is customarily engaged in work of less than seven days' duration;

C. The hiring of an employee in any territory or possession of the United States, except Alaska and Hawaii;

D. The hiring by the legislative and judicial branches of the Federal Government or by a foreign, State, County, or municipal government, or to the hiring of any of their employees, unless such legislative or judicial branches of the Federal Government or foreign, State, county, or municipal government or political subdivision or agency or instrumentality has indicated its willingness to conform to the maximum extent practicable under the Constitution and laws applicable to it, with the program;

E. The hiring of a new employee for domestic service;

F. The hiring of a school teacher for vacation employment or the re-hiring of a school teacher for teaching at the termination of the vacation period.

IX. APPEALS

Any worker or employer may appeal from any act or failure to act by the War Manpower Commission under the employment stabilization program in accordance with regulations and procedures of the War Manpower Commission. The granting or denial of a referral by the United States Employment Service of the War Manpower Commission may be appealed by an employer or an employee providing an appeal is filed within five days from the receipt of notice of such determination with the United States Employment Service local office.

X. CONTENTS OF STATEMENTS OF AVAILABILITY

A statement of availability issued to an individual pursuant to the program shall contain only the individual's name, address, social security account number, if any, the name and address of the issuing employer, the date of issuance, and such other information not prejudicial to the employee in seeking new employment as may be authorized or required by the War Manpower Commission. Statements of availability shall conform to the form attached hereto as Appendix A.

XI. SOLICITATION OF WORKERS

No employer shall advertise or otherwise solicit for the purpose of hiring any individual if the hiring of such an individual would be subject to restrictions under this employment stabilization program, except in a manner consistent with such restrictions.

XII. HIRING

The decision to hire or refer a worker shall be based on qualifications essential for performance of, or suitability for the job, and shall be made without discrimination as to race, color, creed, sex, national origin, or, except as required by law, citizenship.

XIII. REPRESENTATION

Nothing contained in the program shall be construed to restrict any individual from seeking the advice and aid of, or from being represented by the labor organization of which he is a member, or any other representative freely chosen by him, at any step in the operation of the program. Nothing contained in this program shall change, modify, or restrict any collective bargaining agreement existing between the bargaining agency of the employees and their employers.

XIV. GENERAL REFERRAL POLICIES

No provision in the program shall limit the authority of the United States Employment Service of the War Manpower Commission to make referrals in accordance with approved policies and instructions of the War Manpower Commission.

XV. RELEASE OF WORKERS HIRED CONTRARY TO THE PROGRAM

If the War Manpower Commission determines that an employer has hired any worker contrary to this program, the employer shall upon notice of such determination release the worker from his employ. Any worker so released shall be referred to his last previous employer if that employer desires to re-hire him; and if not, to employment by, or in accordance with arrangements approved by the United States Employment Service of the War Manpower Commission, where he will contribute most to the furtherance of the war program.

XVI. DISCONTINUANCE OF INTER-AREA RELEASES

The provisions of the previous Area Employment Stabilization Program, requiring migrant workers to obtain and present inter-area releases, are hereby rescinded.

XVII. ENFORCEMENT

The Area Director or his designated representative shall take such action as is necessary to effect compliance with this program in accordance with authority provided under applicable Congressional enactments, executive orders, and regulations of the War Manpower Commission.

XVIII. EFFECTIVE DATE:

The provisions of this program shall become effective July 1, 1944.

All programs in force as of the above effective date, are superseded by this program.

XIX. INTERPRETATIONS AND PROCEDURES

Interpretations of this program and instructions or procedures relative to its operation shall be issued from time to time, as may be necessary, by the Area Director of the War Manpower Commission.

XX. AMENDMENTS

This program may be altered or amended in the same manner as provided for in its original adoption.

APPENDIX A

WORKER	Last Name	First	Middle	UNITED STATES EMPLOYMENT SERVICE of the WAR MANPOWER COMMISSION
	Address		S. S. Acct. No.	

STATEMENT OF AVAILABILITY

Under the War Manpower Commission Stabilization Program, this Statement of Availability is issued to the worker whose name appears above.

He is or most recently was employed as _____ (Occupation) in _____ (Industry)

Check Proper Block:

1. ☐ He may be employed ONLY UPON REFERRAL BY OR BY ARRANGEMENT WITH THE UNITED STATES EMPLOYMENT SERVICE

2. ☐ He may be employed ONLY UPON REFERRAL BY _____ (Authorized Agency)

3. ☐ (Reserved for USES)

By _____ (Employer or Mgr. of USES) Address _____ Tel. No. _____

Signed _____ Title _____ Date _____

NOTICE TO EMPLOYER HIRING THIS WORKER

The above-named worker may be hired without referral by the United States Employment Service or an authorized agency only if the hiring employer has a written hiring arrangement with the United States Employment Service.

This Statement of Availability should be retained in your files, and be available for inspection.

Form USES0528-DC (Rev.) Budget Bureau No. 11-R014 1 Approval Expires 10-31-44

7-4105-p8-bu-final

Jones - WMC-760

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

For Immediate Release
Wednesday, June 30, 1943

PM-4410

WOMEN'S BUREAU
NOV 23 1944
DEPARTMENT OF LABOR

The nation's laundries, many of which are faced [illegible] manpower shortages, were extended aid today by the War Manpower Commission and the Office of Civilian Requirements of the War Production Board.

Regional directors of the War Manpower Commission were authorized in instructions sent them to classify laundries as "locally needed" and hence eligible for the same preferentail treatment now accorded essential war industries under stabilization plans now in operation throughout the country. This includes referral of workers by the U. S. Employment Service, protection from labor piracy and stabilization of their existing labor force, but does not provide for occupational deferment under the Selection Service Act. At the same time laundries were called upon to discontinue luxury services.

Under the instructions sent the Commission's Regional Directors, laundries may be classified as "locally needed" activities if and when they have met standards agreed upon by the Office of Civilian Requirements and the War Manpower Commission.

These standards, the result of studies instituted several months ago by the WMC and the Office of Civilian Requirements in consultation with all branches of the textile maintenance services, are designed to accomplish two purposes: 1. to put the textile maintenance services on a rock bottom, first-things-first basis; 2. enable them to give adequate essential service to more people than they are now doing with the labor force they have or are likely to get in view of overall requirements.

Standard which laundries, cleaners, linen supply and similar services must meet before they can be classified as "locally needed" follow:

Power laundries shall:

1. Establish the following maximum family laundry services:

   a. Wet wash (shirts finished upon request)

   b. Semi-finished or rough dry (flat work machine finished; wearing apparel dry or damp, and ready to iron; and shirts finished upon request)

   c. Press or family finish (flat work machine finished; wearing apparel straight machine pressed; and shirts finished)

2. Establish the following maximum commercial laundry services:

   a. Flat work (bed, bath, table, and kitchen linen)

   b. Laundering of protective work clothing
      (1) Sanitary clothing machine finished
      (2) Industrial clothing and wipers rough dry

3. Increase the efficiency with which existing personnel is used by making the following adjustments in services and operations:

(Ironing)

a. Eliminate the hand ironing or finishing of any garment except where no mechanical facilities are available.

b. Discontinue retouching of all flat work.

c. Discontinue retouching of wearing apparel by hand after pressing, except for bare minimum required to make outer wearing apparel presentable.

d. Discontinue ironing of all articles that have been dry tumbled.

(Starching)

e. Eliminate all starching or sizing on damp, wet and semi-finished services unless such starching or sizing is done in the wash wheel as a part of the washing process.

f. Eliminate all starching or sizing of flat work.

g. Limit customers to one grade in the starching of wearing apparel and shirts.

(Packaging)

h. Discontinue the use of shirt boards, shirt envelopes, cellophane wrappings, and tissue box linings.

i. Discontinue the fancy packaging of handkerchiefs, socks and soft collars.

j. Eliminate all other superfluous wrapping and packaging.

(Folding)

k. Discontinue the folding of any portion of a damp or wet wash bundle and of the wearing apparel in thrifty and rough dry bundles.

l. Provide standard folding only of all finished flat work.

(General)

m. Discontinue the rebinding of blankets, except where such rebinding is necessary to preserve the life of the blanket.

n. Conform, in their linen supply business, with the same standards adopted by "locally needed" linen supply houses.

4. Ccoperate in public appeals for consumers' economy in the use of laundry services as follows:

   a. Request hotels, boarding and lodging houses, and tourist camps, homes and courts to reduce their requirements for laundry services by:

      (1) Changing bed linen no more often than once a week for any one guest.

      (2) Limiting guests to one face towel and one bath towel every day.

      (3) Minimizing the use of table linens in dining rooms. An average of no more than one tablecloth per table per meal period should be suggested.

   b. Request railroad accounts to eliminate the use of linen towels and to minimize the use of table linen.

   c. Request restaurants to minimize the use of table linen. An average of no more than one tablecloth per table per meal period shall be suggested.

   d. Request housewives and other users of laundry services to:

      (1) Reduce the use of articles that require laundering.

      (2) Discontinue sending small pieces which can easily be done at home.

      (3) Avail themselves of home laundry services wherever it does not interfere with their productiveness in a war job.

      (4) Use wet wash or semi-finish laundry services wherever possible.

      (5) Pre-sort, segregate, and otherwise prepare outgoing laundry bundles in accordance with instructions designed to effect manpower savings in sorting and marking.

5. Take the following steps in the reduction of labor required for pick-up and delivery service:

   a. Establish non-overlapping delivery zones.

   b. Institute a seven-day delivery schedule to household accounts for semi-finish or rough dry and for press or family finish laundry service; that is, simultaneous pick-ups and deliveries once a week in any zone (route).

   c. Institute a not more rapid than 48-hour delivery schedule to household accounts for damp or wet wash laundry service.

d. Eliminate all special pick-ups and deliveries, except to hospitals and the armed forces of the United States, and except where in emergencies, such special deliveries, and pick-ups are necessary for the protection of the public health, life and safety.

e. Eliminate all call-backs except in extenuating circumstances, such as are cited in "d" above.

f. Comply with C.D.T. Order No. 17 and with all other orders of the O.D.T. governing local delivery carriers.

g. Make concerted effort to reduce the number of overlapping territories as between laundries to a minimum by interchanging customers.

6. Extend hours of operation or instituted a multiple shift plan, wherever feasible, so as to maximize the utilization of existing equipment.

7. Indicate a willingness to accept and serve new accounts or to release old accounts, as may be required to maximize the utilization of available manpower, but at the same time engage in no solicitation of new accounts.

These standards, officials said, do not curtail the variety of services which laundries, cleaners, linen supply and other textile maintenance services furnish but they do eliminate frills.

Commenting on the laundry situation, Paul V. McNutt, War Manpower Commission Chairman said:

"The laundry problem is not an over-all national problem. Like other manpower problems it differs from region to region, area to area. As such, specific questions relating to it must be answered in the area and regional offices in the localities where the problems arise."

only copy

ADVANCE RELEASE ADVANCE RELEASE

OFFICE OF WAR INFORMATION

NATIONAL WAR LABOR BOARD

For release in A.M. papers
Tuesday, March 16, 1943 B - 492

As part of its program to simplify procedure and speed the handling of small wage and salary adjustment cases, the National War Labor Board ruled today that employers can grant increases which do not bring wage or salary rates above 40¢ an hour without Board approval.

Such increases, however, the Board's order states, "shall not furnish a basis either to increase price ceilings of the commodity or service involved or to resist otherwise justified reductions in such price ceilings."

The Board took this action in accordance with provisions of Section IV, Title II of Executive Order 9250 which gives the Board authority to grant exemptions from the wage and salary stabilization order " in the case of small total wage increases or decreases as it deems necessary for the effective administration of this order."

The text of the Board's regulation, which was issued in the form of General Order No. 30, is as follows:

GENERAL ORDER NO. 30

In accordance with the provisions of Section 4 of Title II of Executive Order 9250, increases in wage or salary rates which do not bring such rates above 40¢ per hour may be made without the approval of the National War Labor Board, provided that such increases shall not furnish a basis either to increase price ceilings of the commodity or service involved or to resist otherwise justified reductions in such price ceilings.

War Manpower

July 28, 1944

Miss Helen H. Ringe, Chief
Employment Office Service Division
War Manpower Commission
Washington 25, D. C.

Dear Miss Ringe:

I was very much interested to learn that Mrs. Zapoleon has been working with you and am glad that there is this cooperative undertaking between the two agencies.

It has been arranged that Mrs. Zapoleon should attend the meeting on Tuesday, August 1, at 3 p.m., and you may be sure that we will continue to aid in every ~~way~~ possible.

Sincerely yours,

Frieda S. Miller

FM:IS

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

To—		From—	Re Attached Please—
.....	Anderson.	.....	Approve .....
.....	Nienburg.	.....	Comment .....
.....	Larrabee.	.....	Note .....
.....	Benham.	.....	Note and return .....
.....	Dern.	.....	Reply .....
.....	Erickson.	.....	Draft of reply .....
.....	Hyde.	.....	Signature .....
.....	Manning.	.....	Would like to discuss .....
.....	Mettert.	.....	File .....
✓	Pidgeon.	.....	Date .....
.....	Robinson.	.....	
.....	Smith, F.	.....	Note:
.....	Spring.	.....	
.....	Stitt.	.....	
.....	Files.	.....	

OPO 16—24460

✓ Zapoleon

Miss Keller very glad to have you go out with your arrange to tell her assist [illegible]



WAR MANPOWER COMMISSION

WASHINGTON 25, D. C.

July 27, 1944



Miss Frieda Miller
Acting Director
Women's Bureau
Departmemt of Labor

Dear Miss Miller:

The War Manpower Commission has been developing plans and materials for training local USES staff on their responsibilities for providing employment counseling to those applicants who require it. Miss Mary Anderson generously made available Mrs. Marguerite Zapoleon of the Women's Bureau to participate in the development of the program. Mrs. Zapoleon spent approximately a week as a member of our working committee and made a very valuable contribution.

A draft of an operating manual resulting from the work of the committee is now being reviewed by our headquarters staff. A meeting to discuss their comments has been scheduled for Tuesday, August 1 at 3:00 p.m. in the office of Mr. John Collins, Director of the Bureau of Placement. We would like very much to have Mrs. Zapoleon attend.

We appreciate greatly the cooperation of the Women's Bureau and hope that we may obtain the further technical assistance of Mrs. Zapoleon should the need arise.

Sincerely,

Helen H. Ringe

Helen H. Ringe, Chief
Employment Office Service Division

War Manpower

July 21, 1944

Mr. Edward T. Ingle
Information Division
War Manpower Commission
Washington, D. C.

Dear Mr. Ingle:

As a follow-up to a telephone conversation with a member of your information staff, I am sending you a copy of a letter sent to our Bureau from Miss Elinor Sherwood in New York City regarding the difficulty which she has been having in securing employment. I would appreciate it very much if you would send her whatever information you have regarding employment needs in New York City as well as elsewhere, and advise her as to what steps to take to satisfactorily settle her job problem.

Very truly yours,

Frieda S. Miller

KB/am

Enclosure

War Manpower

July 28, 1944

Mr. Callis Stocking, Chief
Reports and Analysis Service
War Manpower Commission
1778 Pennsylvania, Washington, D. C.

Dear Mr. Stocking:

We would like to be put on the mailing list to receive the War Manpower publication of the Reports and Analysis Service, "Employer Report -- Based on Current and Anticipated Employment."

Our division of the Women's Bureau acts as a clearing-house for information and requests that come to the Bureau and we would find your publication of indispensable value.

Mr. Weiss of your agency and his assistant have been very kind in answering our questions, and it was their suggestion that we ask to be put on the mailing list.

Thanking you for your attention in this matter.

Very truly yours,

Mary V. Robinson, Chief
Information Division

VA/am

War Manpower

July 5, 1944

The Honorable Paul V. McNutt
Chairman
War Manpower Commission
Washington, D. C.

My dear Mr. McNutt:

The conditions of the migrant worker in this country have long been a matter of concern to the Department of Labor. Because of the large numbers of women employed, facts surrounding their employment in canning and food-processing industries have been of continuing interest to the Women's Bureau of the Department. Studies were made during the summer and fall of 1943 of canneries in New Jersey and New York and for a short period during this time, representatives of several Federal agencies conducted a joint investigation in New Jersey. Emphasis was put on obtaining information as to the extent of employment and the problem surrounding the use of migratory labor.

As you are well aware, for years the seasonal labor needs of the great fruit and vegetable-producing areas of central and southern New Jersey have been met by recruiting workers outside the area of production. It has been necessary for employers to take the responsibility of arranging housing which is frequently provided in migrant camps or colonies on employers's property, sometimes in part payment in kind for workers' services. Some are small camps and others house several hundred and up to a thousand men, women, and children. In addition, there are in New Jersey several Government-owned and operated labor camps used chiefly for Jamaican men and for prisoners of war.

Conditions in both private and Government camps last summer were open to criticism. Bad conditions were not universal and some employers did house their employees in a decent, orderly way. Nevertheless bad conditions were found throughout the areas where migrant workers are used. The deplorable conditions in some of these camps lead to their becoming breeding places of disease and disorder, endangering the health and safety of both the people who must live in them and the residents of nearby communities. Our attention has been especially called to the situation in the Government housing project on the Seabrook Farms and adjacent to Deerfield Packing Corporation's plant in Upper Deerfield Township near Bridgeton, where overcrowding is reported.

Other copies in
Sec. Sa. file 213

The report of the Women's Bureau study and a detailed report of the above-mentioned joint survey were made to responsible Federal agencies on the regional level and to State agencies. The Office of the Director, Region II, Community War Services, has been acting as Coordinator in discussing these problems and Governor Edison asked the New Jersey Office of Civilian Defense to act as Coordinator for the State in consideration of these matters. A number of meetings have been held and the most recent report from the Women's Bureau agent who has been attending these meetings emphasizes the apparent impossibility of preventing these bad conditions or correcting them through the existing agencies of Government.

The New Jersey State Department of Health has reported conditions to local health authorities who are solely empowered to enforce sanitary regulations. Communities are not equipped to do what is needed in situations of this kind and they feel they have no responsibility in the matter of "non-residents". The State Board of Health can do nothing except recommend improvement.

This is a situation in which the Federal Government has some responsibilities. I am asking if you will not give the matter further and immediate consideration and suggest that greater insistence be made on more effective adherence to the instructions which went out from your office this spring to W. M. C. and U. S. E. S. offices providing that orders for migrant workers were to be filled only after it had been ascertained that adequate housing was available.

It is my understanding in the New Jersey area no investigation of available housing by clearance with the project is made by W. M. C. when the order to recruit is accepted. The employer's statement that housing is available is accepted as compliance with the requirement in W. M. C. rules for interstate clearance. The statement may be inaccurate and the situation made even more serious because of the recruitment done independently by the employer himself.

Sincerely yours,

HBS*KM

Rewritten in Secy's office
as per this copy

War Manpower
Files

June 10, 1944

Mrs. Mary Curran, Training Technician
Apprentice-Training Service
War Manpower Commission
Washington 25, D. C.

Dear Mrs. Curran:

Thank you for the reprints you sent me. I was particularly interested in the one on the Seattle-Tacoma yard at Tacoma. I wonder if the "field representatives" have developed at all since I was out there. At that time there were only two, and they didn't seem to have much recognition or status. Also, while I thought the interviewing and hiring techniques were very good, I thought there should be more follow-up, and also more familiarity on the part of the interviewers with the jobs--when I talked to them last summer, none of them had gone through the yards.

I was also interested in the comment about the union agreement at the Wyckoff Drawn Steel Co. Paragraph C (on the second page of the article) leaves the door wide open for the men to by-pass the women on intermediate-grade jobs, so that the former, though starting at the lower-level heavy jobs, can be upgraded (skipping the grade the women are on), while the women, for all we know, are stuck, say, at the second-level job. I don't know that this is what happens, but it is made possible by the provision in the agreement.

It was nice to see you at the meeting last night; I hope I see you soon again.

Sincerely yours,

Jennie Mohr,
Associate Industrial Economist

JM:ml

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

APPRENTICE—TRAINING SERVICE

June 7, 1944

Miss Jennie Mohr
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Mohr:

Enclosed are three reprints of articles which have been published during the last few months. I thought you would be particularly interested in "Training Solves Expansion Problems" which describes the training program at the Tacoma yards of the Seattle-Tacoma Shipbuilding Company. Their system of counselling women workers is described on pages two and three.

Very truly yours,

Mary Curran

Mary Curran
Training Technician

Enclosures

Files Robinson

War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

June 9, 1944

WOMEN'S BUREAU.
JUN 9 1944
DEPARTMENT OF LABOR

Miss Mary V. Robinson
Women's Bureau
U.S. Department of Labor
Washington, D.C.

Dear Miss Robinson:

Please accept my thanks for the information which you were good enough to furnish me, re "Employment Opportunities for Women in the Post War Period."

I am returning herewith your outline, pursuant to your request.

Very truly yours,

Victor R. Daly

Victor R. Daly, Chief
Division of Service Industries
U.S. Employment Service

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

Area
~~REGIONAL~~ OFFICE

WAR MANPOWER COMMISSION

~~35 TREMONT STREET~~
~~BOSTON 8, MASSACHUSETTS~~

CONNECTICUT
MAINE
MASSACHUSETTS
NEW HAMPSHIRE
RHODE ISLAND
VERMONT

119 Ann St.
Hartford, Conn.

June 6

Dear Mary, I've changed my mind and decided to exhume myself, for I've been buried so long I smell of oil fumes. So I'm going to Washington June 13-15. I'll call you up and see whether we can snitch time for luncheon on Tuesday or Thursday of next week. The White House conference is on the 14th.

Hope I can see you.

Yours ever,
Mary C.

P.S. Wish I could tell you about some of the discriminations against women I run against and the lack of desire on women's part to take anything but a back seat in union activities &c. I mean, with noble exceptions!



War Manpower

June 6, 1944.

Mr. Victor R. Daly
War Manpower Commission
505 K Street, NW
Washington, D. C.

Dear Mr. Daly:

Complying with your telephone request today I am enclosing the resume' of my points at the panel discussion on "Planning for Employment", also the outline prepared by Miss Stitt (the data used in the article by Rosalind Cassidy in the Journal of Educational Socialogy, April 1944. You may keep the resume if you wish, but I would appreciate the return of the outline in the enclosed addressed envelope.

Very truly yours,

Mary V. Robinson, Chief
Information Division

LL
Encl.

Mary Gibson — War Manpower

REGIONAL OFFICE

WAR MANPOWER COMMISSION

[redacted]

[redacted]

CONNECTICUT
MAINE
MASSACHUSETTS
NEW HAMPSHIRE
RHODE ISLAND
VERMONT

WOMEN'S BUREAU
MAY 30 1944
DEPARTMENT OF LABOR

119 Ann St.
Hartford, Conn.

May 29, '44

Dear Mary Anderson:

Your letter of May 26 just reached me. I am not at all surprised that you did not know I had not accepted the invitation of the British Ministry of Information to tour and lecture in factory towns in England. It is not a matter for newspaper and radio publicity when a woman turns down a spectacular job for a garden-variety of hum-drum and hard work in war plants. For months I was buried in the ball-bearing plants of the Connecticut Valley and I think I have done a fairly good educational job with foremen and superintendents and shop stewards and general managers and employers and employees in general. But Connecticut



is still in the Dark Ages regarding such major matters as hours of work. I am now assigned to the Hartford area and I am appalled by the fact that both unions and managers accept the twelve hours day in many plants because it furnishes a nice easy way of increasing wages. Drunkenness is on the increase in a certain department of a plant I know, where men do not, I say work and work 12 hrs. a day + sometimes Sundays, the foreman frankly says they get worn out + escape to drink. I very much fear we women are so engrossed with "us wimmin" that we do not sufficiently recognize the evils men bring to women by overwork &c. —

I have about lost contact with men + women in jobs which consist to a large extent of conference attending. I am turning down a White House invitation this morning to a women's conference on June 14 th. But somehow my poorly paid + lowly job gives me great satisfaction in secrets.

Best wishes, always. Sincerely,

Mary B. Gilson

War Manpower

May 26, 1944.

Miss Mary Gilson,
Regional Office
War Manpower Commission
119 Ann St.,
Hartford, Connecticut

Dear Mary Gilson:

I had not heard that you had returned from England. I was surprised to hear from you. We are very glad indeed to have your new address and we have changed it on our mailing lists.

There is one leaflet which I am very anxious for you to receive that contains our suggested standards in regard to women in the trade union contracts. The men are using these suggestions a great deal and perhaps through that method we may be able to get the equal pay more widely spread.

I do remember when I made my first acquaintance with you in the Joseph and Feiss Company, and I am sure at that time it was the only company in the garment trade that had equal pay for its goal.

I will be very interested to hear something about your trip abroad and what you are doing now.

With very best wishes to you,

Mary Anderson, Director.

MA/nb

REGIONAL OFFICE

WAR MANPOWER COMMISSION

~~18 TREMONT STREET~~
~~BOSTON 8, MASSACHUSETTS~~

CONNECTICUT
MAINE
MASSACHUSETTS
NEW HAMPSHIRE
RHODE ISLAND
VERMONT

119 Ann St.
Hartford, Conn.

May 23

WOMEN'S BUREAU
MAY 25 1944
DEPARTMENT OF LABOR

Dear Mary, Some pamphlets ("When you hire women", etc.) were forwarded to me from Boston. I have notified the Dept. of Labor to change my address but then I'm not done it so will you please see that the inclosed change of address gets into proper hands? I don't want to miss any of your material.

changed to 5/25/44 Hm.

In the N.Y. Times of May 16 I noticed you emphasis on "wage rates based on job content, regardless of ..." I think I told you of Bell Joseph and I being executives spending two nights a week for over a year getting every job in the plant analyzed and evaluated. We had old workers who had done nearly if not all the jobs in the factory, in working up to the highest skilled jobs, confer with us, and we finally got our rate structure set up with 165 different jobs classified in eight "grades". People



knew exactly what they all paid, what they involved, and how you worked up the various rungs. That was twenty-five years ago and it was one of the many ahead-of-his-times things Richard Feiss did. Most people hadn't even conceived of its far-reaching implications in doing away with sex discrimination, but there were lots of well-meaning ignorances about factory management then as now.

I am appalled by the short-sightedness of many government workers (some on our own utilization staff) who are not at all troubled by the inordinately long hours many men are working. Considering the effect on home life and therefore on women I think it is about time we paid more attention to hours in general instead of merely women's hours. I was told yesterday by a foreman in a forge shop that drunkenness in his department has been increasing disturbingly. Twelve hour days don't pay! Often workers who are the most highly paid are clamoring for more and more overtime pay. It is shocking to see worn, tired faces. I am on the ground floor of things. I am urging a utilization code for Conn. & hope to put it over soon.

Cordially,
Mary Gilson

Miss Anderson, Miss Nienburg, Miss Pidgeon May 29, 1944

Marguerite Zapoleon

Report on recent assignment to work with War Manpower Commission on Employee Counseling Program, and trip to Bethany College, Bethany, W. Va.

Under the leadership of Miss Helen Ringe, Chief, Employment Office Service Division, Bureau of Placement, War Manpower Commission, the following working committee met in New York City to develop plans for an employee counseling program to serve all applicants of job employment offices who are in need of such service: Miss Lillian Alexander, Employment Office Service Division, Bureau of Placement, War Manpower Commission; Mrs. Marguerite Coleman, Administrative Assistant to the Chief, Chief Employment Service Division, Region 2, WMC; Mr. Willard Hield, Director, Chief Employment Service Division, Region 11, and Mr. Chester Swanson, in charge of testing, Minneapolis Area, WMC, and Mrs. Marguerite Zapoleon, Women's Bureau.

The working committee drafted an outline of manual materials on counseling which would be needed to introduce the program (~~outline attached~~). During my week with the committee, I concentrated on preparing a detailed outline of the use of occupational and industrial information in the counseling process and similar outline of cooperation of community agencies.** Plans are for the remaining members of the committee to prepare the materials needed by the end of June, with help from the WMC headquarters staff as needed.

On Friday, May 19th, the working committee met with a consulting committee in a one-day conference, led by Miss Ringe. The membership of the conference, besides Miss Ringe and the working committee included: Dr. Marion R. Trabue, Dean of Education, Penn State College and President of the National Vocational Guidance Association; Miss Jane Culbert, Junior Consultation Service, New York City; Mr. Garrett Bergen, Personnel Director, Marshall Field, Chicago; Miss Bess Bloodworth, Women's Advisory Committee, WMC; Mr. Spates, General Foods Corporation; Dr. F.J. Roethlisberger, Bureau of Industrial Research, Harvard; Mr. Fenlon, American Legion; Mr. Silvey, CIO; Dr. C.L. Shartle and Miss Beatrice Dvork, Occupational Analysis and Manning Tables Division, WMC; Mr. Joseph B. O'Connor, Deputy Regional Director, Region 2, WMC, and Mr. Mayo of the same office.

This group discussed the objectives and scope of an employment counseling service, its place and relationships in the community, particularly with industry, organized labor and training agencies. The conference broke up into three small groups in the afternoon to discuss (1) the interview and the counseling process, , (2) the selection and training of counselors and test examiners, and (3) deficiencies in service of the employment office which the counseling program should be designed to correct.

The members of the conference were in agreement on the importance of making employment counseling facilities available to all in need of such service and that this type of service should be offered as widely as possible. The problems of obtaining qualified personnel and funds to finance the program loomed

** outline attached

large in the discussion. There was evidence of dissatisfaction with the present streamlined operation of employment offices and the lack of attention to the individual in the placement process. Mr. Fenlon, Mr. Spates, and Mr. Bergen were among those who hinted at a desire for the employment service to be under State control and operation when the war emergency is over.

The main discussion of course did not center on these overall problems but rather on the immediate problem of developing counseling services.

Attached is a copy of a letter sent by Dr. Calhoun, President of Altrusa International to Mr. McNutt as a result of a recommendation of Miss Hester Hood, Chairman, Vocational Information Committee. Although the above plans are in line with the recommendation contained in the letter, it may strengthen the work of Miss Ringe and her group who are trying to work out the program on a practical and democratic basis. + to MW 3rd file

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While in New York at Miss Robinson's request, looked up Mme. Wojciechowska and suggested New York sources of information which would be valuable to her in planning a program to train vocational guidance personnel now for employment counseling service in postwar Poland.

Following arrangements made earlier, I spent May 18th at Bethany College, Bethany, West Virginia, in connection with the Annual Vocational Information Conference for the women students on that campus. Because of the presence of some 300 Navy V-12 students, the title of the speech which I gave at the opening session was the general one of "The Postwar Outlook for Employment." However I was able to discuss the opportunities and problems of women in the postwar period in relation to this general topic. Rather surprisingly a number of the Navy and civilian men students attended some of the afternoon sessions on particular occupations which covered the following fields: biological sciences and medicine; mathematics, physics and personnel work in industry; public service and law; nursing; retail merchandising; social service; public and secretarial science; radio and music in industry; religious education; journalism and publicity; chemistry; library science; and education. I attended the group meetings on biological sciences and medicine and on social work, and conferred with a few students in the late afternoon.

Miss Hoagland, the Dean of Women, and Miss Margaret Carrigan, the Assistant Dean, had attended the Women's Institute of Professional Relations and were critical of the lack of women speakers on the program of the Institute. Recent Women's Bureau bulletins were left with Miss Carrigan and the postwar bulletin was sent to her on my return. On the whole, in spite of the presence of the V-12 students, the campus has been relatively untouched by the war as compared with colleges located in metropolitan districts or industrial areas.

W.W 2

MWZ:ml

III D. Developing Cooperative Arrangements with Other Community Agencies

1. Need for cooperative arrangements

a. For planning to use services most effectively and to avoid duplication.

b. For the undertaking of joint projects of direct use to other agencies as well as to the USES.

c. For obtaining information needed in the counseling process.

d. For establishing and operating procedures for referral of counselees to the Employment center.

e. For establishing and operating procedures for the referral of counselees by the Employment center to other agencies for other services.

2. Types of community agencies with which cooperative arrangements are needed

a. Other local vocational guidance or employment counseling services. A complete check on the number and extent of the existing services should be made before cooperative arrangements are attempted. A coordinating council of guidance agencies or a directory of such agencies may already exist. In the absence of a council or directory, a first-hand check should be made with the following sources which are likely to have vocational counseling programs or to use the services of such programs:

Community guidance organization (sponsored by more than one agency)

Public school system

Colleges or universities in the community

The rehabilitation service

Veterans' counseling services

Council of social agencies (regarding programs of its constituent agencies) or individual agencies if the council cannot supply the information. Children's aid and family

welfare associations and agencies serving handicapped persons and racial or religious groups are among those which frequently employ a special staff member for vocational guidance.
YMCA, YWCA, B'nai B'rith and other youth groups
Service and fraternal clubs (for specially sponsored programs for older men and women, etc.)

A coordinating council of guidance agencies provides an effective means for planning a cooperative, non-duplicating service. The Employment Service may well help to form such a council where one does not exist and where there are more than 2 or 3 agencies providing vocational counseling service. Either through such a council or by direct agreement or understanding, the employment counseling service in the employment office should:

1. be completely informed concerning the sources available in the other agencies, concerning the type of applicant served, extent and nature of the service given, the charge (if any) for service.
2. work out the basis and arrangement whereby the most effective reciprocal use may be made of the facilities of the agency and the employment office. (See statement on use of non-fee-charging vocational guidance agencies)

b. Agencies having aptitude testing facilities

Most testing facilities will be revealed in checking local vocational guidance services but others may exist for other purposes in the public schools, colleges or universities, and

in social or research agencies. Utilization of these testing facilities may be desirable if the employment office, because of a small counseling load or lack of personnel or other reasons, does not maintain a testing unit or if its testing unit lacks certain desirable facilities which the other services possess. A plan may be worked out whereby the employment office can refer counselees for certain tests. However, since testing is a technical field in which only applied psychologists are competent to judge the adequacy or inadequacy of a program, it is essential to have administrative approval before other than exploratory steps are taken toward a cooperative arrangement.

c. Public school system

Cooperation with the public school system should be established at the start of the counseling program to arrange for:

1. procedures for referral of school leavers needing employment counseling;
2. procedures for referral of counselees needing further education and training in the public school system;
3. procedures for obtaining information from the schools concerning curricular offerings;
4. procedures for obtaining significant information from the school system regarding counselees who have attended local schools;
5. flow of information from the employment center to the school system for use in the school vocational guidance program.

The initial arrangements made will depend entirely upon the local situation; upon what school system is doing in preparing its students for employment; upon the attitude of the schools' personnel toward the employment office; upon the extent of the employment offices' counseling facilities and the load upon them. Most school administrators believe that the schools are responsible for the placement and follow-up of their graduates, but very few school systems operate an organized, centralized, placement service which is in operation throughout the calendar year. Many, however, have designated teachers or counselors to handle employer calls which come to the school, and vocational schools frequently have coordinators who contact employers in the specific fields for which they train. If the school system is skeptical about transferring to the employment office any of the services (usually partial ones) it has undertaken in counseling and placing school leavers, it is best for the employment office to begin with the set-up as it exists and to work out an arrangement for supplementing the school's program and for avoiding duplication. As the employment office demonstrates its advantages in employment counseling through effective service, the school system will find it advantageous to use its counseling and placement personnel more and more in the in-school, pre-employment counseling program rather than in employment counseling. So what appeared to be impossible at the outset, through cooperation and demonstration gradually becomes a reality. The essential problem, therefore, is to work out an initial agreement with the school system which is mutually satisfactory and which will enable the students leaving school to enter the labor

market to obtain the maximum assistance in relation to their needs from both the schools and the employment office.

In conferring with school officials regarding cooperative arrangements, it is desirable wherever possible to have the employment office represented by at least one person who has had experience in school work and is known to be aware of the school's problems in the counseling area. It is also important to make the relationship reciprocal by offering to supply useful occupational and follow-up information to the school in return for the services of the school in supplying information on counselees.

d. Other non-collegiate schools and training agencies such as business and vocational schools, and special training programs

e. Colleges and universities

f. Medical and health services

g. Psychiatric services

h. Social agencies such as Travelers' Aid, Family Welfare Association, Legal Aid Society, YWCA, etc.

i. Agencies offering special services to veterans (Veterans' Administration, Selective Service, American Legion, Red Cross, etc.)

j. Labor law enforcement agencies

k. Employer organizations

l. Employee organizations

m. Service clubs

n. Public library

3. Steps in arranging cooperation

a. Clearance with manager (or member of local office staff to whom

responsibility for public relations has been delegated); with Area Director, etc.

b. Utilization of connections already established for similar purposes and avoidance of duplication.

c. Conference with appropriate representative of other agency to discuss problem and work out method

d. Approval of method by both agencies after trial

e. Provision for periodic review of method

4. Methods for cooperation with other agencies

a. Informal, direct handling by counselor, using telephone, letter or visit as occasion requires.

b. Formal referral, information, or reporting procedures (including use of Social Service Exchange).

c. Liaison personnel appointed to handle all contacts between the two agencies

d. Committee or conference discussions

e. Consulting or advisory committee composed of representatives from principal agencies

f. Coordinating council of guidance agencies

5. Tools needed

a. Directories of facilities

b. Referral, information, and report forms, as agreed upon

6. Illustrations

From communities of different size illustrating cooperation with various types of agencies

IV. Tools Used

B. Occupational and Industrial Information

1. Major types of information needed in counseling

a. detailed information on particular occupations or industries: duties, qualifications, working conditions, etc. 1/

b. An over-all picture of the occupations in the community

c. current changes and general trends in particular occupations

d. current changes and general trends in the occupational pattern of the community

e. lists relating occupations to each other or to certain abilities or interests

2. Sources of information

a. U.S.E.S.

1. Job descriptions

2. Dictionary of Occupational Titles, Parts I, II and IV

3. Job families series

4. Area statements

cf Vet. Prog.

5. Industry statements

cf Vet. Prog.

6. Labor market reports

7. "Special Aids" for placing World War II veterans in civilian jobs and the Aids for Army--Navy personnel.

8. Industry Manning tables

b. Other Federal Agencies

1. Bureau of the Census (U. S. Department of Commerce) statistics and reports: Census of occupations, census of manufactures,

1/ Refer to basic outline suggested by N.V.G.A. for vocational guidance purposes in Occupations

census of distribution, census of service establishments, monthly estimates of labor supply, special reports

2. Bureau of Labor Statistics (U. S. Department of Labor): Community studies, trends reports, reports on particular industries, reports on particular occupations
3. U. S. Office of Education: Bibliographies, training information, special studies
4. Misc. - on specific fields or for particular groups of workers or areas: U. S. Department of Agriculture (agriculture), U. S. Department of Commerce (distrib. and industry), U. S. Department of Labor, Women's Bureau (women), U. S. Department of Labor, Children's Bureau (minors), Office of Defense Transportation (transp.), U. S. Civil Service Commission (Govt.)

c. Employer, Employee and Professional Organizations, including National Vocational Guidance Association, etc.

d. Schools and Colleges

e. Commercial Publishers

(Indexes to occupational material: such as Occupational Index or Vocational Guide as well as pamphlets, books, periodicals)

f. State Government Bureaus

1. Department of Labor or Industry
2. Department of Education

g. Local Sources

1. Vocational guidance agencies
2. Schools and colleges
3. Employer organizations

4. Employee organizations
5. Professional groups
6. Libraries

h. Primary Sources from which Local Occupational Information May Be Culled

1. Reports of registrations and placements (for trends)
2. Employer visit records; E.S. 270's (for specific industrial and occupational information)
3. Follow-up reports and records (for specific occupational information)
4. Application blanks (for employer sources and some indications with regard to occupations)
5. Employer organizations and employers (for specific occupational information and opinions on trends)
6. Employee organizations and employees (for specific occupational information and opinions on trends; for information on apprenticeships and union membership regulations)
7. Licensing bodies (for information on particular occupations; number of licenses issued, trends, qualifications, in some cases, on licensed schools and training agencies.)
8. Professional organizations and professional persons (for information on particular occupations)
9. Current want ads, newspaper items, etc. (for current news and clues to further information on occupation and trends)
10. Training agencies (for information on training facilities, trends in occupations for which training is offered, etc.)

3. Arranging occupational materials for use in counseling

   a. Separation according to major categories

      1. Background and trends information (used mainly by counselor in acquiring background and maintaining perspective)
      2. Periodicals and current materials
      3. Bibliographies, including current indexes to new materials, indexes, lists of visual aids, etc.
      4. Occupational books and pamphlets covering more than one occupation
      5. Pamphlets, cards, outlines covering a single occupation or industry
      6. Lists showing relationships between particular occupations and between occupations and particular aptitudes, training, interests, or experience such as "What to do in the World's Work" - Hunter College; The "Which" Book - etc., as well as job families, special aids relating Army and civilian jobs.
      7. Information or aids for use of counselee on occupational planning, job hunting, job success

   b. Desirable facilities for arranging the information

      1. Bookshelves
         a. Reference materials or background and trends
         b. Occupational books and other materials concerning more than one occupation
         c. Back issues of selected periodicals
      2. Magazine rack or table for current periodicals and materials and for job-hunting hints or suggestions

3. Desk space and book ends for desk reference books: Dictionary of Occupational Titles, lists showing relationships, bibliographies, directories, etc.

4. 5" x 8" card file for job descriptions and other occupational material in card form

5. Looseleaf notebooks for filing industry and area outlines and local occupational outlines not in card form

6. Cross-reference card index (may be included with 4) arranged alphabetically by occupational title or numerically by code no. referring to occupational information in books, periodicals, and reference materials not covered in occupational notebooks or desk file.

Note: As the material is used in counseling, that most frequently needed should be prepared in card or outline form for easy access at the counselor's desk. Background and other materials used only occasionally may be housed in a library collection at some distance without much loss in efficiency.

c. Using the information in the counseling program

1. With the counselee

cf Manual Part II 2307

a. Answering counselee's specific questions and supplying specific information on occupations or occupational trends orally in counseling interview

cf Manual Part II 2137

b. Looking up pertinent information with the counselee participating, using Dictionary of Occupational Titles, job descriptions, occupational pamphlets and other

source material

c. Referring counselee to occupational material in waiting room or library, using bibliographies, cross-reference file, as necessary

d. Showing counselee variety of outlets related to his training, experience, aptitudes, or interests, where it is desirable to stimulate his thinking and exploration of possibilities, using lists, special aids, etc.

cf Manual Part II 2137; 2500-2506

Part III 2000-2999 Vet. Program (regarding Special Aids and Physical Demands Analyses)

e. Arriving with counselee through elimination of possibilities at appropriate classification (or classifications) using, as necessary,

1. Job descriptions and local occupational outlines for direct comparison of qualifications for a specific with assets and liabilities
2. "Special Aids for Placing World War II Veterans in Civilian Jobs"
3. Entry classifications and Part IV, Dictionary of Occ. Titles
4. Job Families
5. Lists of occupations related to interests, school subjects

f. Using occupational information to aid counselee in planning further training and advancement, using job descriptions; occupational outlines and training directories.

2. With groups of counselees or potential counselees with similar problems, using such group presentation methods as: series of

lectures, visual aids, discussion groups, observation trips, etc.

Note: This may be done in cooperation with veterans organization (for veterans); public schools (for those ready to leave school); and agencies serving particular groups such as the handicapped.

3. With counselors and other staff members in training and for their reference use.

F. Planning and stimulating research to obtain information needed and to supplement and keep up to date that already at hand.

1. Cooperate with other counseling groups in preparation of occupational information (community surveys, analyses of particular industries or occupations)

2. Cooperate with research groups which may be interested in conducting projects in occupational area, such as colleges and universities, research committees of such organizations as the local branch of the National Vocational Guidance Association, etc.

3. Direct research by staff and others to

   a. Check and supplement national job descriptions and materials with local information;

   b. Prepare additional information as needed

4. Continuous or periodic checking on specific occupational information needed and planning research projects in direct relation to the need.

   Note: Where no counseling data are available, the order of importance in initial planning of research may be determined by the relative importance of the industry or occupation in the community in point of numbers engaged (census or community survey material and employment office registrations and placements)

5. Plans for culling from data immediately at hand (ES 270's, reports of registration and placement, etc.) significant data that may be used to keep counseling staff informed, using looseleaf notebooks or cards, for all data so that replacements can be made easily and old material weeded out.

DRAFT OUTLINE - MANUAL MATERIALS ON COUNSELING FOR DISCUSSION WITH CONSULTING COMMITTEE

I. Introduction to the Counseling Program

A. Need for Employment Counseling

B. Definition, objectives and scope

C. How applicants who need counseling are selected

a. Types of counseling problems

b. How to recognize the need for counseling

II. Organization

A. Place of counseling in the organization structure of the local office

B. Relationship of counseling to other local office activities

1. Interviewing

2. Order taking

3. Referral

4. Verification

5. Employer visiting

6. a. Order solicitation

b. Follow up

7. Information gathering and research activities (Labor Market Reports, occupational analysis, etc.)

8. Testing

C. Flow of applicants in and out of counseling service

III. Installation of the program

A. Selection of specialized personnel

1. Qualifications of counseling staff

2. Qualifications of test administrators

B. Training of staff

1. Specialized staff

a. Plan for initial training

b. Plan for continuing training

c. Plan for supplementary training

2. All other staff

a. Training of present staff

b. Continued induction training for new staff

C. Providing adequate facilities and equipment

1. Location of counselor in the office

2. Space, privacy, etc.

3. Providing reference materials to staff

a. Bibliography on techniques

b. Bibliography on occupational information

c. Occupational monographs and job descriptions

d. Training directories and information

e. Directory of community facilities

f. Trends information

g. Miscellaneous

D. Developing cooperative arrangements with other community agencies

1. Testing services

2. Community counseling agencies

3. Relations with schools and colleges

4. Relations with veterans organizations

5. Employer organizations

6. Social case work agencies

7. Psychiatric and medical services

8. Other agencies

IV. Supervision

A. In the local office

1. Selection, training, and functions of supervisor

B. At State and Regional level

1. Selection, training, and functions of supervisor

EMPLOYMENT COUNSELING

I. Introduction

II. Elements in employment counseling

A. Assisting the applicant to define his problem

B. Securing information related to the applicant's problem

1. Information from the applicant

2. Information from the school (generally limited to younger applicants)

3. Information from the service (veterans)

4. Information from social agencies or other agency which has referred the applicant

5. Information involving special problems such as health, finances, etc.

a. Use of Social Service Exchange in locating sources of information

6. Test results

C. Giving information to the applicant related to his problem

1. Interpretation of test results

2. Labor market information

3. Occupational requirements, etc.

D. Assisting the applicant to formulate and launch upon a plan of action

1. Assisting him in relating his assets and liabilities to a broad occupational field

2. Immediate plan for employment or training, or definite plan for getting occupational information necessary to proceed further

3. Assignment of occupational classification

4. Referral to training or employment

E. Follow-Up

1. Kinds

a. With the employer

b. With the applicant

2. Purpose

a. For evaluation of the service

b. Further service to applicant

c. For information for use in counseling

3. Procedures and forms for follow-up

a. What applicants to follow-up

b. When

c. Methods used

d. Use of results

III. Techniques used in counseling

A. Interview

B. Case conference

C. Cross counseling

IV. Tools used

A. Records

1. Application cards

2. Counseling record

3. Test record

B. Occupational and industrial information

1. Materials already available

a. Official USES Materials

b. Local adaptations of National materials

c. Local material from other sources

d. Current indices and periodicals

e. Tie-in with libraries

2. Materials that can be prepared - sources of information

   a. Field visit reports - 270 reports, manning tables

   b. Job orders

   c. Information secured from follow-up of referrals

   d. Direct research

C. Tests - performance, aptitude, interest questionnaires

D. Directory of Training Facilities

E. Directory of Community Facilities

F. Information on scholarship funds

War Manpower

May 18, 1944

Mr. Dewey Coates
Bureau of Placement, WMC
Room 523, 1778 Pennsylvania Avenue
Washington, D.C.

My dear Mr. Coates,

I am sending to you for answer a letter reaching me from Mrs. P. K. Stern, Civic Secretary of the Women's City Club, to whom Mrs. Garvey wrote concerning using unemployed women from the Caribbean area for domestic service work here. Could you send a copy of your reply, to Mrs. Stern (at 55 West 44th Street, New York), and to me also? Every so often a letter like Mrs. Garvey's comes in, and we would like to know what official response is being given to such inquiries. The Women's Bureau acts as a clearing-house for information on household employees in this country - among its other duties and programs - so that your attention to this will be very much appreciated.

Sincerely yours,

rfn

Mary Anderson, Director

May 18, 1944

Mrs. P. K. Stern, Civic Secretary
Women's City Club of New York
New Weston Hotel, 50th & Madison
New York 22, New York

Dear Mrs. Stern,

We have your inquiry about the labor contract law under which unemployed women from the Caribbean area could come to this country for domestic service work, and we are referring the letter you enclosed to the War Manpower Commission which is the agency that makes all determinations in regard to importations of foreign labor. For various reasons I doubt the feasibility of Mrs. Garvey's plan. I am asking the Commission to send you a copy of the reply sent her.

Sincerely yours,

Mary Anderson, Director

rfn

WOMEN'S CITY CLUB OF NEW YORK

NEW WESTON HOTEL • 50th STREET & MADISON AVENUE • NEW YORK 22, N. Y. • PLAZA 3-9177

Haw
2819

WOMEN'S BUREAU
MAY 10 1944
DEPARTMENT OF LABOR

May 12, 1944

Miss Mary Anderson
Bureau of Women in Industry
U.S. Department of Labor
Washington, D.C.

Dear Miss Anderson:

The Women's City Club has received a letter, copy of which I enclose, about which I am turning to you for advice. Would you tell me about the labor contract law? We have no great concern with this matter, except that we feel a courteous reply should go to this correspondent and so would appreciate any information you can give us.

Sincerely yours,

Sylvia P. Stern

Mrs.P.K. Stern
Civic Secretary

Railroad workers from Mexico - are contract laborers - temporarily admitted. Comr is not concerned with means of obtaining Permission ~~if not~~, address to Comr.

Africa Appro. Act - waives contract labor law for natives of this hemisphere (islands adjacent thereto)

58 Stat 811

Public 229
78th Congs.

Mrs Keedy B.L.S. - Exp not
? Solicitor's Office - " "

not bad tex
no contract

(for agric labor in U.S during hostilities of this war

~~Robinson~~ Files

In reply
refer to WMPE

May 20, 1944

Mrs. Amy Ashwood Garvey
209 West 125th Street
New York, New York

Dear Mrs. Garvey:

Your letter of April 27, 1944, addressed to the Women's City Club, 55 West 44th Street, New York, New York, has reached me through Mrs. P. K. Stern, Civic Secretary of the Women's City Club, and Miss Mary Anderson, Director, Women's Bureau, U. S. Department of Labor, Washington, D. C.

As far as I know, there has never been any formal consideration by the Federal Government to the importation of off-shore women for domestic employment in the continental United States. Although it is recognized that a critical shortage of domestic female labor exists in this country at the present time and that there is also a supply of such labor available not only in other countries bordering upon the Caribbean but also among our Puerto Rican citizens, the shipping situation has been so acute that it has been extremely difficult to import a sufficient number of male workers for the critical war industries here. In view of the urgent need for increased foreign labor from the Caribbean area, of Foreign Nationals and Puerto Ricans, for essential war work in both agriculture and industry, it seems doubtful that any plan for the utilization of off-shore domestic female labor will be seriously considered, at least until the shipping situation has materially changed.

If such a plan is initiated in the future, information will then be available at the nearest office of the United States Employment Service in your community.

Very truly yours,

John D. Coates, Chief
Foreign Labor Section
Bureau of Placement

Whiley:eik

cc--Mrs. P. K. Stern
Miss Mary Anderson

Myswander
War Manpower

May 8, 1944

Mr. A. W. Motley, Acting Director
Bureau of Placement
War Manpower Commission
Washington 25, D.C.

Dear Mr. Motley:

We are glad to know that the War Manpower Commission is developing an employment counseling program for effective service to any applicant who requires such assistance.

We shall be pleased to cooperate with you in developing this program. We are arranging for Mrs. Zapoleon to meet with your staff group in New York for one week beginning on May 10th, and to participate in the meeting with your consultation committee on May 19th. It will be necessary for her to take care of a previous commitment in West Virginia on May 18th, and to return to Washington after your May 19th meeting, since her program as planned here is particularly heavy during the next few weeks.

(as Consultant, by their request)

Mrs. Zapoleon will arrange the details with Miss Ringe as you suggest in your letter of May 5th.

With every good wish for success in your plans, I am

Yours sincerely,

Mary Anderson, Director

MWZ:ml

War Manpower (11)

WAR MANPOWER COMMISSION

~~FEDERAL SECURITY AGENCY~~

~~SOCIAL SECURITY BOARD~~

UNITED STATES EMPLOYMENT SERVICE

~~XXXXXXXXX~~
~~XXXXXXXXX~~

610 Newhouse Building
Salt Lake City 1, Utah
May 17, 1944

Filed in Fault Division Research

WOMEN'S BUREAU
MAY 22 1944
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Enclosed is a brief Monthly Labor Market Developments Report for the month of April from each of the ten labor market areas in the State of Utah.

The information contained in these reports is restricted.

Very truly yours,

Joseph S. Mayer

Joseph S. Mayer,
State Manpower Director - Utah

Enclosures

FOR VICTORY
BUY UNITED STATES SAVINGS BONDS AND STAMPS

file

War Manpower

May 8, 1944

Mr. A. W. Motley, Acting Director
Bureau of Placement
War Manpower Commission
Washington 25, D.C.

Dear Mr. Motley:

We are glad to know that the War Manpower Commission is developing an employment counseling program for effective service to any applicant who requires such assistance.

We shall be pleased to cooperate with you in developing this program. We are arranging for Mrs. Zapoleon to meet with your staff group in New York for one week beginning on May 10th, and to participate in the meeting with your consultation committee on May 19th. It will be necessary for her to take care of a previous commitment in West Virginia on May 18th, and to return to Washington after your May 19th meeting, since her program as planned here is particularly heavy during the next few weeks.

Mrs. Zapoleon will arrange the details with Miss Ringe as you suggest in your letter of May 5th.

With every good wish for success in your plans, I am

Yours sincerely,

Mary Anderson, Director

MWZ:ml

~~Addison~~

Napoleon



OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

May 5, 1944

WOMEN'S BUREAU
MAY 8 - 1944
DEPARTMENT OF LABOR

Miss Mary Anderson
Chief, Women's Bureau
Department of Labor
Washington 25, D.C.

Dear Miss Anderson:

Miss Ringe has told you of our plans to develop an employment counseling program for employment offices. She has also told you of our interest in obtaining the assistance of well-qualified professional staff to assist us in its preparation.

For this reason, I am delighted to know that you will consider our request to use the professional assistance of Mrs. Marguerite Zapoleon who is on the staff of your Bureau. We feel that Mrs. Zapoleon's broad experience in counseling and related fields, as well as her present responsibilities in the Women's Bureau, will provide a very great contribution to the program. Our plans for its development are outlined in the attached statement which was considered and approved by our executive staff on April 28.

Our specific work plans propose that the staff group begin to outline the program on May 10. The proposals which they develop will then be considered by the counsulting committee. We hope that this conference will take place on Friday, May 19, in New York City. We would like very much to have Mrs. Zapoleon work with a staff group for about one week beginning on May 10, and to participate in the meeting with the consulting committee. After that, we should like to feel that Mrs. Zapoleon might be available from time to time to consult with us on material as it is developed. We hope the project will be completed by the middle of June.

The generous cooperation of the Women's Bureau in making Mrs. Zapoleon's services available to us will be greatly appreciated and acknowledged in the text on the program when it is completed. If you find it possible to make a favorable response to this request, we shall inform you specifically about further arrangements.



I suggest that if you have any question about the arrangements, you discuss them directly with Miss Helen Ringe, Acting Chief of the Employment Office Service Division.

Sincerely yours,

A. W. Motley, Acting Director
Bureau of Placement

Attachment

Draft No. 1 - Prepared by Placement Bureau
Purpose: For the consideration of Executive Staff

April 18, 1944
Confidential - Not to be released

WAR MANPOWER COMMISSION
Washington 25, D. C.

EMPLOYMENT COUNSELING PROGRAM IN LOCAL USES OFFICES

Many returning veterans and other individuals in every community are confronted with substantial problems relating to the choice of an occupation, the training and experience needed to qualify for an occupation, and environmental circumstances or handicaps which increase the difficulty of obtaining employment. These problems are usually related to the immediate objective or necessity of finding employment. The public employment service, in assisting individuals in the solution of these problems, provides for the most effective placement of potentially useful workers during the war period and prepares for the full impact of the demobilization and conversion of industry at the end of the war. It is therefore important that we prepare to establish, in all local offices, an employment counseling service which is integrated with the regular interviewing and placement activities of the office. This service should be provided to improve the opportunities for placement of any applicant who requires assistance because of age, inexperience, loss of skill, decline in occupation or industry, technological change or other difficulties affecting proper placement.

Scope of Employment Counseling as a Local Office Function

Employment counseling as a local office function is the process whereby the present and potential qualifications of the individual applicant are related objectively to occupational requirements and conditions. The objectives are to assist the individual in making a practical and satisfactory occupational choice, and to provide the employment office with a realistic basis for placing him in employment.

The following steps are involved in reaching the objectives:

1. Assisting the individual to discover, analyze and evaluate his potential abilities

2. Relating known and determinable abilities and interests of the individual to the requirements of occupations and to the demand for workers in such occupations

3. Giving current information on exact job requirements and employment opportunities

4. Putting the applicant in touch with community facilities through which he may better equip himself for employment opportunities in his chosen field of employment

5. Promoting or soliciting jobs from employers when no suitable job opening is available in the local office.

6. Discovering and analyzing some of the factors that have prevented an individual from finding work or holding a job in his chosen or present field and assisting him to overcome these barriers to employment.

Employment counseling which includes these factors is not only appropriate in the functions of public employment offices but is basic in all good placement work. Moreover, effective, realistic counseling must be closely related to placement objectives and opportunities. Counseling is not a completely independent or separate function; it represents, rather, an extension and intensification of the methods and techniques directed to complete understanding of the individual in relation to his employment objectives. The "counseling" point of view, when adopted in employment office practice, permeates all the services given to individuals, whether employer or applicant. It seeks an intensified, individual approach for applicants who are often labeled "hard to place." "Employment counseling" as part of placement service emplcys all the resources and techniques which can be used to solve problems of employment adjustment. That this individualized approach yields results was shown in a recent study of the placements made in one of the Demonstration Local Offices. Of the 1,370 veterans who contacted the local office during a 22-day period, 675 or 49% were placed through regular channels without special handling. Those who could not be placed in the regular process were referred to the Veterans' Service Division. This division, by providing further individualized assistance, was able to refer an additional 262 veterans to jobs, bringing the total percentage of veterans referred to 68% which was 6% higher than the referrals of all applicants.

Resources and Techniques for Use in Employment Counseling

In order to render effective assistance in the solution of applicants' employment problems, tools and techniques must be used which will permit an objective evaluation of the individual's abilities and the employment opportunities to which they may be related, and which will expedite providing the information which the applicant needs.

During the last ten years, the employment service has developed tools and techniques which provide the basis, not only for an effective employment counseling program, but for leadership in promoting establishment of the program in local employment offices. Wider and fuller use of the following available tools will be a necessary and important part of the proposed counseling service for applicants.

1. Occupational Interest Questionnaire - for use in assisting applicants whose interests are not focused upon a specific occupation or field of work to make an occupational choice.

2. Aptitude tests - to assist in determining the applicant's "learnability" for an occupation in which he has had no previous experience. In addition to the aptitude batteries available for approximately 100 specific occupations or groups of closely related occupations, a general apptitude test battery has been developed to enable the local office to test the veteran for a number of different occupations simultaneously. It can be scored for any one of sixty occupations.

3. Physical Demands Analysis and Physical Capacities Appraisal Technique - permit the employment office to guide and refer an applicant with physical or mental limitations to jobs in which his limitations will not interfere with successful performance on the job and in which his disabilities will not be aggravated.

4. Entry Occupational Classification - provides the structure for classifying applicants according to their ascertained potentialities for entry into occupations in which they have not had work experience or specific training. Lists of classification factors accompanying each classification indicate the occupationally significant characteristics, the possession of which would determine the suitabilities of the classification.

5. Job Families - suggest occupations which are related on the basis of the knowledge and abilities required and may be used as suggested sources from which to select workers who have related experience, or to transfer a worker to another occupation with a minimum of additional training.

6. Special Aids for Placing Army and Navy Personnel in Civilian Jobs - designed to facilitate the maximum utilization in civilian occupations of the occupational experience and training gained while in the armed services and to utilize effectively the abilities of persons with physical limitations who are discharged.

7. Job Descriptions - provide detailed information on significant factors of a job or occupation such as the purpose, duties, equipment, working conditions, qualifications, relations to other jobs, training information, training selection factors, and physical demand factors.

8. Area Statements - prepared periodically for more than 100 of the principal industrial centers in the country to meet the need (of local offices) for current information on employment prospects in areas outside the one served by the particular employment office concerned.

9. Industry Statements - describe for each industry the location and importance of the industry, the industrial processes and kinds of jobs, working conditions, and current and post war employment prospects.

10. Directory of Community Agencies - have been prepared or will be prepared on a local basis to show community organizations to which applicants can be referred for needed services. The directory will show their principal function, clientele, types of problems handled, and names of individuals to be contacted for the various services.

11. Directory of Training Facilities in the Area - to be prepared in each area to show the local educational and training facilities, public and private, with information on the types of training available, the length of courses, the prerequisites for entrance, the cost, and the names of the individuals to whom the applicant can be referred for further details in connection with the training courses in which he is interested.

The Program to be Undertaken

A. Development of Basic Materials

The Bureau of Placement with the collaboration of other Bureaus and Services of the Commission will proceed immediately to develop the basic materials required for use in introducing and operating the employment counseling program. A technical advisory committee will be established consisting of leaders in the field of vocational counseling to provide advice and assistance in determining the content of the materials and critical review upon their completion. Operating staff who have had a background of successful experience in employment counseling will be brought in from the field to assist in the development of the necessary materials. Two types of materials will be prepared:

1. Handbook on Employment Counseling, which will contain detailed information on the methods and techniques for performing the major steps in the employment counseling process. The following brief outline indicates the anticipated coverage:

   a. Nature of employment problems presented by applicants

   b. Responsibility of the Employment Service for providing assistance to applicants in the solution of their employment problems.

   c. Definition of, objectives of, and steps in employment counseling

   d. How to determine the presence of an employment problem

   e. The type of employment counseling to be provided by the regular interviewer

   f. The employment counseling problems to be referred to the employment adviser

   g. Methods and techniques of the counseling interview

   h. Determining need for aptitude and performance tests and interpreting the results

   i. Determining possible occupational choice and classification

   j. Requesting information from and referral to other community agencies

   k. Development and use of local labor market, industrial, and occupational information for use in the counseling program

   l. Occupational Adjustment and the development of community resources

2. Training Materials and a Training Plan will be developed for use in preparing personnel in the local offices for their counseling responsibilities. The training materials will include Instructor's Guides to accompany the Handbook, units on the use of each of the interviewing and placement tools mentioned previously, and trainee's casebooks based upon actual cases taken from local office experience.

B. Introducing the Program

The program will be introduced first in selected local offices in each state. Headquarters staff will assist in its introduction and in evaluating the progress made. Plans will be made, where possible, for obtaining assistance from colleges and universities in providing certain phases of the required training. When it is determined that these offices have reached the desired level of competence in operating the program, the staff will be brought in from other offices within the state to receive training preparatory to introducing the program in their own offices.

C. Operating the Program

In order that the counseling approach will permeate all the interviewing and placement activities of the local office, all interviewers who deal with applicants will be given basic training on the counseling process. The regular interviewers will then assume the major responsibility for providing employment counseling. Specific interviewers, however, will be designated to handle the more difficult and time-consuming problems, and will be given more intensive training to equip them for this responsibility.

War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

FOR VICTORY

BUY UNITED STATES SAVINGS BONDS AND STAMPS

OFFICE OF THE AREA DIRECTOR

WOMEN'S BUREAU
APR 17 1944
DEPARTMENT OF LABOR

1242 ". Third St.
Cleveland 13, Ohio
April 15, 1944

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Thank you very much for sending the copies of the bulletins, "When You Hire Women" and "Community Services for War Workers". I would like a supply of "When You Hire Women", but I judge that Miss Shea here in Cleveland will have some, and will send them to me.

The pamphlets on "The Woman Counselor" came, and have been given to the instructor of the personnel class.

Thank you very much for putting me on your mailing list. I hope it will not be too long before you will have occasion to come to Cleveland. In the meanwhile, I shall feel free to write you about any problem on which the Women's Bureau can offer assistance. Miss Elizabeth Magee, who is on our Womanpower Committee, brings us information from time to time about the activities of the Women's Bureau.

Sincerely yours,

Mary C. Schauffler

Mary C. Schauffler
Chairman, Womanpower Committee
Cleveland Area

File
War Manpower

May 2, 1944.

Mr. George S. Roche, Chief,
Reports and Analysis Division,
War Manpower Commission,
153 Kearny St.,
San Francisco, 8, California.

My dear Mr. Roche:

I am returning copy No. 65 of the March, 1944 Demand-Supply Supplement for the San Jose, California labor market area, as you requested in your letter of April 26.

Sincerely yours,

Mary Anderson, Director.

Nb

STATE OFFICE

WAR MANPOWER COMMISSION

153 Kearny Street
San Francisco, 8, California
April 26, 1944

WOMEN'S BUREAU
MAY 2 - 1944
DEPARTMENT OF LABOR

Miss Mary Anderson
Director of the Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

We mailed to your office yesterday copy No. 65 of the March, 1944 Demand-Supply Supplement for the San Jose, California labor market area. Since a rather serious error appears in this report we are requesting its return. You shall receive an amended copy of this report immediately.

Yours very truly,

Sam Kagel
Acting State Manpower Director
Northern California

George S. Roche T-L

By: George S. Roche
Chief, Reports & Analysis Division



War Manpower

May 2, 1944.

Miss Margaret Fisher, Special Consultant
War Manpower Commission
157 Peachtree Street, NE
Atlanta 3, Georgia

Dear Miss Fisher:

I have your letter of April twenty-eighth, and we shall be glad to send you twenty-five copies of the pamphlets desired, including Special Bulletin 14. This order will be filled from the G.P.O. and it may be a week or ten days before the package reaches you. A new list of our war publications is about ready, and a supply of these will be sent as soon as available.

We are adding your name to the mailing list so that our future publications will reach you; we can send a small quantity of any of these whenever you find there is a need for some.

Our shipbuilding bulletin is now at the printer's. We are listing Mrs. Roberts for it when available, and in the meantime we are sending a set of our standards pamphlets and related materials.

I shall tell Miss Ziegler she is missed in Atlanta. I know she enjoyed her work in that region, and especially the fine relationships she had with staff members in some of the other regional Government offices there. As you doubtless heard, she is now heading our Chicago office and thus it is possible to be near her mother and father who need her.

Please do not hesitate to write us any time we can be of help.

Sincerely yours,

Mary Anderson, Director.

RFB
11

ALABAMA
FLORIDA
GEORGIA
MISSISSIPPI
SOUTH CAROLINA
TENNESSEE

REGIONAL DIRECTOR

WAR MANPOWER COMMISSION

157 PEACHTREE STREET NE.

ATLANTA 3, GA.



April 28, 1944



Miss Mary Anderson, Director
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Anderson:

On a recent trip to Mobile, Alabama, I was informed by Mrs. Mary M. Roberts, Chief of the Women's Counselling Division, Alabama Dry Dock & Shipbuilding Company, that she would like to have a list of your publications. Mrs. Roberts is interested in any general materials on the employment of women, and particularly interested in studies covering the employment of women in shipyards. I told Mrs. Roberts I would ask your Bureau to send her a list of bulletins and pamphlets which she can procure from you.

When Miss Martha Ziegler was in Atlanta, she was kind enough to furnish me with a small supply of your various pamphlets from time to time. We have found your publications extremely helpful in our contacts with industries in this region. I now find our supply of these materials depleted. Would it be possible for your office to send me 25 copies of each of the publications which I have checked on the attached list? I would also like to have about 10 copies ~~of the list~~ itself, as well as any other materials which may not be listed thereon.

Recently I have seen a copy of your excellent pamphlet entitled, "When You Hire Women", special bulletin No. 14. I would particularly like to have 25 copies of it. Also, would it be possible for my name to be placed on your regular mailing list?

We have missed Miss Ziegler's contribution here. She was always cooperative and of real assistance.

Thanking you for your past courtesies, I am

Very truly yours,

Margaret Fisher

Margaret Fisher
Special Consultant

Enclosure

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington, D. C.

Publications relating to
WOMEN IN WAR INDUSTRIES

INDUSTRY SURVEYS.

(Occupations; entrance rates of pay; hours of work; personnel requirements, policies, and practices; working conditions; future employment.)

AIRCRAFT.

Women's Employment in Aircraft Assembly Plants in 1942. Bul. 192-1. 1942. 10c. (Earlier survey, 1941, Bul. 189-1.)

ORDNANCE.

Women's Employment in Artillery Ammunition Plants in 1942. Bul. 192-2. 1942. 5c. (Earlier survey, 1941, Bul. 189-3.)

Employment of Women in Manufacture of Cannon and Small Arms, 1942. Bul. 192-3. 1943. 10c.

MACHINE TOOLS.

Employment of Women in the Machine-Tool Industry, 1942. Bul. 192-4. (In press.)

INSTRUMENTS.

Employment of and Demand for Women Workers in the Manufacture of Instruments - Aircraft, Optical and Fire-Control, and Surgical and Dental. Bul. 189-4. 1942. 5c.

SHIPBUILDING.

(Survey in progress.)

Publications Relating to Women in War Industries

STATE-WIDE surveys of war industries.

Women Workers in Some Expanding Wartime Industries - New Jersey, 1942. Bul. 197. (In press.)

RECOMMENDED STANDARDS for women's working conditions, safety, and health.

Special Bul.

1. Effective Industrial Use of Women in the Defense Program. 1940. 10c.
2. Lifting Heavy Weights in Defense Industries. 1941. 5c.
3. Safety Clothing for Women in Industry. 1941. 10c.
4. Washing and Toilet Facilities for Women in Industry. 1942. 5c.
5. Women's Effective War Work Requires Time for Meals and Rest. 1942. 5c.
6. Night Work for Women and Shift Rotation in War Plants. 1942. 5c.
7. Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs. 1942. 5c.
8. Guides for Wartime Use of Women on Farms. 1942. 10c.
9. Safety Caps for Women in War Factories. 1942. 5c.
10. Women's Effective War Work Requires Good Posture. 1943. 5c.
11. Boarding Homes for Women War Workers. 1943. 5c.
12. Choosing Women for War-Industry Jobs. 1943. 5c.
13. Part-Time Employment of Women in Wartime. (In press.)
14. Standards for Maternity Care and Employment of Mothers in Industry. (Mult.)

Publications Relating to Women in War Industries

EQUAL PAY.

"Equal Pay" for Women in War Industries. Bul. 196. 1942. 10c.

See also Buls. 192-1, -2, -3, -4; 197.

LABOR LAWS.

Application of State Hour Laws to Women on War Projects. (Mimeo.)

Exemptions from State Hour Laws for Women and Minors (16 and over) in War Manufacturing. (Mimeo.)

State Minimum-Wage Laws and Orders: 1942. Bul. 191. 1942. 20c.

On the Home Front with Minimum Wage. (Pamphlet.)

Labor Laws for Women Advocated by the Women's Bureau. 1942. (Mimeo.)

RECREATION AND HOUSING.

Recreation and Housing for Women War Workers--Handbook on Standards. Bul. 190. 1942. 10c.

Wartime Reminders to Women Who Work: The Paying Guest; The Paid Hostess. 1943. 5c.

See also Special Bul. 11.

WORLD WAR I.

Mimeographed extracts from Bul. 12 (out of print) showing increase in woman-employment, 1914-18, and listing jobs where women replaced men in certain war industries.

GENERAL.

What Job Is Mine on the Victory Line? Leaflet 1. 1943.

Typical Operations on Which Women Are Employed in War Production. (Mimeo.)

Your Questions as to Women in War Industries. Bul. 194. 1942. 5c.

GENERAL--*Continued.*

Speeches, articles, reprints--such as:
General picture of woman employment.

✓Absenteeism.

✓Occupational hazards, industrial illness, safety and health problems.

Women in personnel work in war industries.

✓Need for community facilities.

Press releases: Summaries of bulletins and special subjects - such as:

✓Factory lunch facilities.

✓Handicapped workers.

✓Replacement of men by women workers.

✓Negro women in war industries.

The Women's Bureau for the Woman Worker - in War and Peace. Leaflet for 25th Anniversary of the Women's Bureau. 1943.

The LABOR INFORMATION BULLETIN is a Department of Labor monthly, giving, among other things, current information on women workers. Subscription 75c. a year. Order from Superintendent of Documents, Washington 25, D. C. The WOMAN WORKER, bimonthly of the Women's Bureau, was discontinued with May 1942 issue.

Bulletins may be ordered from the Superintendent of Documents, Washington 25, D. C. at prices listed. A discount of 25 percent on orders of 100 or more copies is allowed. Material not priced can be obtained from the Women's Bureau, free.

July 1943

Files

War Manpower

April 15, 1944

Mr. C. L. Shartle, Chief
Division of Occupational Analysis and Manning Tables
War Manpower Commission
Washington, 25, D. C.

My dear Mr. Shartle:

Thank you for sending to the Bureau two copies of the second edition of the SUPPLEMENT TO THE DICTIONARY OF OCCUPATIONAL TITLES. In the past we have found your material very helpful.

Sincerely,

Bertha M. Nienburg,
Assistant Director

BMN:LW

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
APR 13 1944
DEPARTMENT OF LABOR

April 13, 1944

Miss Bertha M. Nienburg
Assistant Director
Women's Bureau
Department of Labor
Washington, D.C.

Dear Miss Nienburg:

We are sending you under separate cover 2 copies of the second edition of the SUPPLEMENT TO THE DICTIONARY OF OCCUPATIONAL TITLES which has just been released. In the past you received the Supplement and its first and second additions. This second edition of the Supplement supersedes all other previously released supplementary data to Parts I and II of the Dictionary. This material defines 4,201 additional occupations, known by 6,619 job titles, in terms of the duties performed on the job.

Sincerely yours,

For the Deputy Chairman
and Executive Director

C. L. Shartle

C. L. Shartle, Chief
Division of Occupational Analysis
and Manning Tables

Separate cover



1912

File
War Manpower
Women's Com

April 10, 1944.

Mrs. Margaret A. Hickey, Chairman
Women's Advisory Committee,
War Manpower Commission,
Washington 25, D. C.

My dear Mrs. Hickey:

Again, it will be impossible for me to come to your meeting as I am going to New York attend the AFL forum on postwar problems. I am so sorry not to see Mrs. Wood. I did meet her when she was here before and I hope she will stay over so that I can see her before she leaves. I will be back late Thursday.

Thank you again for the invitation.

Sincerely yours,

MA/nb

Mary Anderson, Director.



WAR MANPOWER COMMISSION

WASHINGTON 25, D. C.

April 3, 1944



Miss Mary Anderson
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

I am sure you have already received a copy of our Agenda for April 11 and 12. However, I am enclosing a duplicate.

Please note that Mrs. Ethel M. Wood, Honorary Secretary, British Parliamentary Commission is scheduled to speak at the meeting on Wednesday, April 12. We have invited Mrs. Wood to come at 11:00 a.m. I hope very much you will make a special effort to be with us at this time.

With best wishes,

Sincerely yours,

Margaret A. Hickey

Margaret A. Hickey, Chairman
Women's Advisory Committee

WAR MANPOWER COMMISSION
WOMEN'S ADVISORY COMMITTEE

AGENDA

April 11 and 12, 1944

Social Security Building

Tuesday, April 11, 1944 -- 10:00 a.m. (Executive Session) - - - - Room 5140

Report of Executive Director

Tuesday, April 11, 1944 -- 2:00 p.m.

Sub-Committee meetings

Community Facilities and Services, Mrs. Dunbar, Chairman - - - - - - Room 5140

Public Relations, Miss Bloodworth, Chairman - - - - - - - - - - - Room 5743

Post-War Planning, Dr. Franklin, Chairman - - - - - - - - - - - - Room ____

Wednesday, April 12, 1944 -- 10:00 a.m. - - - - - - - - - - - - - Room 5140

1. Mrs. Frances W. Trigg, Special Agent, War Production Training of Women, Office of Education - "Women Counselors in Industry"

2. Mrs. Ethel M. Wood, Honorary Secretary
British Parliamentary Womanpower Commission

Wednesday, April 12, 1944 -- 2:00 p.m. (Executive Session) - - - - - Room 5140

Reports of Chairman of Women's Advisory Committee and Chairmen of Sub-Committees

WAR MANPOWER COMMISSION
WOMEN'S ADVISORY COMMITTEE

AGENDA

April 11 and 12, 1944

Social Security Building

WOMEN'S BUREAU
MAR 28 1944
DEPARTMENT OF LABOR

Tuesday, April 11, 1944 -- 10:00 a.m. (Executive Session) - - - - Room 5440

Report of Executive Director

Tuesday, April 11, 1944 -- 2:00 p.m.

Sub-Committee meetings

Community Facilities and Services, Mrs. Dunbar, Chairman - - - - - - - Room 5440

Public Relations, Miss Bloodworth, Chairman - - - - - - - - - - - - - Room 5743

Post-War Planning, Dr. Franklin, Chairman - - - - - - - - - - - - - - Room ____

Wednesday, April 12, 1944 -- 10:00 a.m. - - - - - - - - - - - - - - - - Room 5440

1. Mrs. Frances W. Trigg, Special Agent, War Production Training of Women, Office of Education - "Women Counselors in Industry"

2. Mrs. Ethel M. Wood, Honorary Secretary
British Parliamentary Womanpower Commission

Wednesday, April 12, 1944 -- 2:00 p.m. (Executive Session) - - - - - - Room 5440

Reports of Chairman of Women's Advisory Committee and
Chairmen of Sub-Committees

Files
War Manpower

April 10, 1944

Mr. C. L. Shartle, Chief
Division of Occupational Analysis and
Manning Tables
War Manpower Commission
Washington, D. C.

My dear Mr. Shartle:

We acknowledge receipt of one copy of the second edition of the Supplement to the Dictionary of Occupational Titles. Your material on Occupational Titles has been very helpful to us in the past and we are sure it will continue to be so in the future.

Sincerely yours,

Mary Anderson, Director

BMN:LW

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
MAR 20 1944
DEPARTMENT OF LABOR

March 18, 1944

Miss Mary Anderson
Director, Women's Bureau
Room 1307
Department of Labor
Washington, D.C.

Dear Miss Anderson:

We are sending you under separate cover 1 copies of the second edition of the SUPPLEMENT TO THE DICTIONARY OF OCCUPATIONAL TITLES which has just been released. In the past you received the Supplement and its first and second additions. This second edition of the Supplement supersedes all other previously released supplementary data to Parts I and II of the Dictionary. This material defines 4,201 additional occupations, known by 6,619 job titles, in terms of the duties performed on the job.

Sincerely yours,

For the Deputy Chairman
and Executive Director

C L Shartle

C. L. Shartle, Chief
Division of Occupational Analysis
and Manning Tables

Separate cover

FOR VICTORY
BUY
UNITED STATES
WAR
BONDS
AND
STAMPS

1912

War Manpower

March 7, 1944.

Mary Jane Carter, Administrative Assistant
War Manpower Commission
1835 North Third Street
Harrisburg, Pennsylvania.

Dear Miss Carter:

At the request of Mr. H. Raymond Mason, Acting State Manpower Director, we are placing your name on our list to receive any material that we publish on Negro women in war work. Enclosed are copies of a number of articles prepared by our Bureau for Pulse magazine, a pamhlet published before the war, and one or two other items.

We did not publish the "Spot Check and Survey in Pennsylvania of Women Workers -- Non-White," and I cannot find out where it is available, although I have checked with the Government Printing Office and the Bureau of the Census. If you have not already contacted your own Department of Labor and Industry concerning this publication, I suggest you inquire of Mrs. Mary Rice Morrow, Department of Labor and Industry, Bureau of Women and Children, Harrisburg, Pa.

Very truly yours,

Kathryn Blood.

WAR MANPOWER COMMISSION

UNITED STATES EMPLOYMENT SERVICE
1835 North Third Street
Harrisburg

OFFICE OF
THE DIRECTOR FOR
Pennsylvania

March 4, 1944

WOMEN'S BUREAU
MAR 6 - 1944
DEPARTMENT OF LABOR

U. S. Department of Labor
Women's Bureau
Washington, D. C.

Gentlemen:

We will appreciate having the name of Mary Jane Carter, Administrative Assistant, War Manpower Commission, 1835North Third Street, Harrisburg, Pennsylvania, placed on a complimentary list of persons to receive any publications which you may have on the employment of negro women in war work.

Will you, also, please send us two copies of the "Spot Check and Survey in Pennsylvania of Women Workers - Non-White?" If there is a charge for this survey, will you please advise so that we may make the necessary arrangements for purchasing this material.

Very truly yours,

H. Raymond Mason

H. Raymond Mason
Acting State Manpower Director



Files
War Manpower

February 10, 1944

Mr. Wm. F. Patterson, Director
Apprentice-Training Service
War Manpower Commission
Washington, D. C.

Dear Mr. Patterson:

Thank you so much for sending me "Training Women for War Work." It is an excellent pamphlet, and we have no special pamphlet on training.

On page 13 I noticed the picture "Wood Drilling Rifle Stock." While there may not be any danger where the woman holds her hand, I think however that the wrist watch might catch. As you know, we have always cautioned against the wearing of wrist watches or other jewelry on the arms, or any jewelry of any kind, because it may cause accidents.

With best wishes,

Sincerely yours,

Mary Anderson, Director

MA:IS

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

APPRENTICE—TRAINING SERVICE

February 1, 1944

WOMEN'S BUREAU
FEB 4 1944
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
United States Department of Labor
Washington, D. C.

My attention has been called to your excellent publication "The Woman Counselor In War Industries - An Effective System." Copies are being sent to our field staff for use in advising industries employing a number of women workers.

In looking over the bibliography on the back of this bulletin, I note that there are no publications listed which deal particularly with training. I am enclosing the new printed edition of "Training Women for War Work" which might meet this need. Sufficient copies are now available for fairly wide distribution.

Very truly yours,

Wm F. Patterson

Wm. F. Patterson
Director

Enclosure



War Manpower

February 22, 1944

Miss Dorothy Brown, Assistant Manager
United States Employment Service
War Manpower Commission
425 South Fifth Street
Louisville 2, Kentucky

My dear Miss Brown:

In reply to your letter of February 17, the Women's Bureau is concerned with making studies of fatigue in relation to war production and hours of work and we are studying the transition problems which will face women workers after the war ends. The studies will be undertaken in several parts of the country and if you have anyone on your rolls who might be interested, we should be glad to hear about them. At the present time, we do not plan to be in Kentucky.

Sincerely yours,

Mary Anderson,
Director

AL:dg

February 22, 1944

Miss Dorothy Brown, Assistant Manager
United States Employment Service
War Manpower Commission
425 South Fifth Street
Louisville 2, Kentucky

My dear Miss Brown:

In reply to your letter of February 17, the Women's Bureau is concerned with making studies of fatigue in relation to war production and hours of work and we are studying the transition problems which will face women workers after the war ends. The studies will be undertaken in several parts of the country and if you have anyone on your rolls who might be interested, we should be glad to hear about them. At the present time, we do not plan to be in Kentucky.

Sincerely yours,

Mary Anderson,
Director

AL:dg

War Manpower

February 8, 1944

WMAP
War Manpower Commission
Washington, D.C.

Gentlemen,

In answer to the enclosed notice, dated January 2d but received after January 20th, I wish to request that my name be kept on the mailing list for the Labor Market. This publication is used constantly not only by my staff when preparing articles, speeches, and so on, but is referred to when visitors to the Women's Bureau require information regularly published in the Labor Market.

Yours very truly,

Mary V. Robinson
Chief, Information Division

rfn

War Manpower

January 28, 1944

War Manpower Commission
Washington 25, D. C.

Dear Sir:

It is very important that a copy of THE LABOR MARKET be available to the Research Division of the Women's Bureau. Basic information of employment of women in the war period is necessary in developing policies for the well-being of the working woman at the present and during the transition period.

Please retain my name on the mailing list.

Yours sincerely,

Mary Elizabeth Pidgeon,
Chief, Research Division

JMP:ml

War Manpower

25

February 3, 1944.

War Manpower Commission
Washington 25, D.C.

Attention WMAP

My dear Sir:

My reason for wishing to be kept on the mailing list is that I use the facts in "Labor Market" in writing newspaper releases, magazine articles, speeches and radio scripts. I need it for general information and background.

Please note your card dated January 2, but was mailed January 20, regarding the 30 day deadline period.

Sincerely yours,

ML
erb

encl.

Mary Lyddane
Information Division.

Files
War Manpower

January 28, 1944

War Manpower Commission
Washington, D. C.

Gentlemen:

The Labor Market Report is important to us as it is our source of determining shifts in woman labor demand. It is our job to carry on studies concerning specific problems that affect this woman labor supply and to advise employers concerning such problems. Therefore several copies of Labor Market Review are necessary to the Bureau.

Very truly yours,

Bertha M. Nienburg,
Assistant Director

BMN:LW

CROSS REFERENCE SHEET

Name or Subject

War Manpower - - - - - -

File No.

War Defense file

Regarding

Date

Suggested agreement with War Manpower Commission Jan 1944

SEE

Name or Subject

File No.

Sec'y's file

213

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War Manpower

January 14, 1944

War Manpower Commission
Bureau of Manpower Utilization
Worker-Analysis Unit
Washington, D. C.

Copy of a letter from

Mr. J. David Baker, Jr.,
157 Wentworth St.,
Charleston, S. C.

Re: Mechanical aptitude or
placement tests for
specific trades such as -
sheet metal work
welding
machine shop work
etc.

DEPARTMENT OF LABOR

May 7, 1943

Miss Robinson -

Mr. Haber's office telephoned about our reference of this request. They say they have not done anything on rehabilitation of household workers.

IHS

No 203

War Man Power

April 25, 1943.

16

20 C

C 34

Mr. William Haber
Bureau of Program Planning
War Manpower Commission
Washington, D.C.

My dear Mr. Haber:

We are enclosing a copy of a letter from Mrs. Helen Agnew of Toronto, Canada discussing her interest in the postwar rehabilitating of household workers who have gone into war industries. If you have made any such plans or expect to formulate such in the future we shall appreciate your cooperation in submitting the information to Mrs. Agnew.

Sincerely yours,

MVR
erb
encl.

Mary Anderson, Director

War Manpower

January 28, 1944

Miss Rhea Radin
War Manpower Commission
Room 738
1778 Pennsylvania Avenue
Washington, D. C.

My dear Miss Radin:

At your request we are sending you a copy of the Women's Bureau organization chart.

Sincerely yours,

Anne Larrabee, Chief Clerk

File
War Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
JAN 17 1944
DEPARTMENT OF LABOR

January 15, 1944

Miss Mary Anderson
Director
Women's Bureau
U. S. Department of Labor
Washington 25, D. C.

Dear Miss Anderson:

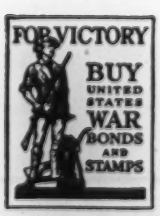
In accordance with your request, I am happy to to send you the manual on "Selective Placement for the Handicapped" and the related training material. (Miss Anderson has this material)

Sincerely yours,

A. W. Motley

A. W. Motley
Acting Director
Bureau of Placement

Enclosures 4



Comment - War Manpow

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C. 25

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

WOMEN'S BUREAU
JAN 15 1944
DEPARTMENT OF LABOR

January 14, 1944

Miss Mary Anderson
Director, Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

I received from you the report of a survey made last fall in the canning industry in New Jersey and New York states by Mrs. Helen Sater. I read this report thoroughly and was very much impressed by the completeness and by the clear way in which all the factors were so well analyzed and correlated. It is an exceedingly fine piece of work. I wish to thank you for sending this report to me, and I shall certainly indicate my appreciation to Mrs. Sater when I see her again.

Sincerely yours,

E. G. Bewkes

Eugene G. Bewkes
Assistant Director
Bureau of Manpower Utilization

FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS

~~Return to 154~~

Files

War Manpower

September 14, 1943

Miss Anne S. Davis, Supervisor
Recruitment Unit
War Manpower Commission
222 West North Bank Drive
Chicago (54), Ill.

Dear Miss Davis,

I have your inquiry of September 11th regarding occupations of women in the steel industry. We have been making a survey of iron and steel in the last couple months, but we have nothing in print as yet. Ethel Erickson with an assistant was in the Gary Works of Carnegie-Illinois, and in Republic Steel.

All our schedules are not in. We shall have reports on all the Carnegie-Illinois plants (15), on Lackawanna, Jones-Laughlin, Inland, and others. We expect Miss Erickson in next week, when we shall draw up an occupational list of jobs women are now performing. I hope it will not delay you too much to wait a week before getting an answer from us to your request. We shall be glad to send this, and as soon as possible.

I appreciate your comments on the Labor Day article. I have no plans for getting to Chicago soon,* but perhaps you are coming to Washington sooner, and we can have a good visit about everything.

Sincerely yours,

Mary Anderson, Director

rfn

* Expect to be there for Governmental Labor Officials' meeting Oct 8-10, La Salle Hotel.

never sent - Jan 1944. 154

WAR MANPOWER COMMISSION

[redacted]

UNITED STATES EMPLOYMENT SERVICE

OFFICE OF
THE DIRECTOR FOR

ILLINOIS

WOMEN'S BUREAU
DEPARTMENT OF LABOR

222 West North Bank Drive
Chicago 54, Illinois
September 11, 1943

Miss Mary Anderson
Director of Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

I am getting material together for employers in the iron and steel industry in Chicago, an occupation in which women are employed. ~~I~~ steel industry I can get information on Chicago from Manning Tables.

Can you send me any additional material on occupations, other than clerical, in which they are employed in other parts of the country. I have the British list. Anything that you have will be acceptable.

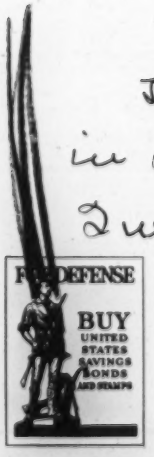
Yours sincerely,

WALTER E. PARKER
Director for Illinois
United States Employment Service

By Anne S. Davis
ANNE S. DAVIS, Supervisor
Recruitment Unit

There was a "swell" article about you in one of our papers Labor Day and I was filled with pride. When are you coming this way?

Anne —



War Manpower

December 23, 1943.

Mr. Paul V. McNutt, Administrator
War Manpower Commission
Social Security Building
Washington, D. C.

My dear Mr. McNutt:

I am enclosing copy of a letter addressed to the Secretary of Labor by Mrs. Frances Lee Barrows, in which she complains that her employer dismissed her from her work in a defense plant because of her inability to work the required 15 and 16 hours a day, 7 days a week, and carry on her household duties.

As Mrs. Barrows points out, her employer's refusal to make a reasonable adjustment in the number of hours which women shall work has lost one able and willing worker for the war effort.

I am writing to ask if it would be possible for the Manpower Commission through the local employment service to take this matter up with the employer in the interest of war production.

I conclude from Mrs. Barrows' letter that she is employed by the L. F. Benton Company, Vergennes, Vermont.

Sincerely yours,

MA:LS:cam
Enc. 1

Mary Anderson, Director

WAR MANPOWER COMMISSION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

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WASHINGTON JAN 10 10 30PM 1944

DEPARTMENTAL PERMIT No. 16

Miss Mary V. Robinson
Rm. 1316, Dept. of Labor
Washington, D. C.

6 Copies
INF-8

War Manpower

January 12, 1944

...ssued by War Manpower Commission is requested to be continued, as the ...Bureau is in need of continuing information on official statements from the Commission regarding the labor force; the 6 copies are used by the Director of the Bureau for distribution to key staff members, especially those in the field.

Yours very truly,

Mary V. Robinson, Chief
Information Division

rfn

CHECK ITEM DESIRED	
T.W.I. News Letter	
T.W.I. Circular Letter	
The Labor Market	
Employer Report of Current and Anticipated Requirements	
Placement Activities	
Adequacy of Labor Supply in Important Labor Market Areas	
A.T.S. Series PCA	
A.T.S. Series TSG	
Information Service Releases	

In reply refer to: WMAP

Washington 25, D.C., January 2, 1944

The Office of War Information has ordered all Government departments and agencies to reduce the distribution of Government periodicals, reports and publications to the absolute minimum compatible with the promotion of the war. We find it necessary, therefore, to ask each person receiving War Manpower Commission reports and publications, listed to the left hereof, whether it is essential that his name continue on the mailing list. A justification must be made for each publication desired.

If you desire to continue receiving any of these publications, please write to us within 30 days, stating, for each publication, your reasons therefor and attaching this card with any necessary corrections of name or address, including zone symbol. otherwise your name will be taken off the mailing list.

War Manpower Commission

7-3851 bs-79

War Manpower

January 12, 1944

War Manpower Commission
Washington, D.C.

Attention WMAP

Dear Sirs,

The sending of 6 copies of the releases issued by War Manpower Commission is requested to be continued, as the Women's Bureau is in need of continuing information on official statements from the Commission regarding the labor force; the 6 copies are used by the Director of the Bureau for distribution to key staff members, especially those in the field.

Yours very truly,

Mary V. Robinson, Chief
Information Division

rfn

CROSS REFERENCE SHEET

Name or Subject

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Nov 28, 1944

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Mrs. C. L. Huber - - - 172

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REPORT AND RECOMMENDATIONS ON THE DEVELOPMENT OF SERVICES FOR CHILDREN OF WORKING MOTHERS

DECLASSIFIED
E.O. 11652, Sec. 3(E) and 5(D) or (E)
Authority 750127
By DR/SH NARS, Date 2/28/75

January 25, 1943

Summary

1. On December 30, the Office of Defense Health and Welfare Services submitted to the War Manpower Commission for its consideration a proposal for the reorganization of the program to develop services for children of working mothers incorporating (a) an amendment of the War Manpower Commission Policy on Employment in Industry of Women with Young Children, (b) the limitation of Lanham Act funds to capital expenditures, and (c) the recommendation that funds be made available to the Office of Defense Health and Welfare Services in order to continue the administrative services which had been initiated under the $400,000 appropriation and to provide funds for operation of this program.

2. The War Manpower Commission acted on the recommendation regarding the amendment to the policy statement to include under IV (a) "Such women be employed at such hours, on such shifts or on such part-time schedules as will cause the least disruption in their family life;". The recommendations regarding the proposed program were referred to the staff for review.

3. The program proposed by the Office of Defense Health and Welfare Services incorporates (a) centralization of responsibility, (b) use of established Federal, State and local channels, and (c) possibility of direct Federal action in developing programs in specific areas where the States or localities have not taken the initiative. This proposal meets with the approval of both the Office of Education and the U. S. Children's Bureau and has the advantages of fully utilizing State and local agencies, of delegating responsibility among the various Federal agencies concerned in such a manner that functions will not be duplicated, and of permitting the War Manpower Commission to assure itself directly that day-care programs are developed in the areas and to the extent required by the local labor supply situation. The major points of the plan are outlined below:

a. Responsibility for administration of the entire program would be centralized in the Office of Defense Health and Welfare Services and any funds appropriated would be assigned to this agency.

b. The Office of Education and the Children's Bureau would be used by the Office of Defense Health and Welfare Services for technical assistance in developing programs, evaluating State and local plans, and supervising standards.

RESTRICTED

c. The War Manpower Commission will take responsibility for notifying the Office of Defense Health and Welfare Services of the need for extensive employment of women in specific localities.

d. The Office of Defense Health and Welfare Services will take responsibility for approving State plans and for providing Federal funds to supplement State and local resources for the operation of services.

Plans to be approved by O-S -

e. State operating plans will reserve the right of Federal agencies to assume direct responsibility for supervision and reorganization of local operations not conducted in accordance with approved standards.

f. The Office of Defense Health and Welfare Services will assume responsibility for requesting State plans in those instances in which the State agencies do not take the initiative; and, in cases where State or local agencies normally responsible for provision of such services are unwilling or unable to develop necessary programs with Federal aid, the Office of Defense Health and Welfare Services will take responsibility for initiating programs in localities needing these services.

4. Since the proposal of the Office of Defense Health and Welfare Services is predicated on the limitation of Lanham Act funds to capital expenditures, a re-interpretation of this Act will have to be made before the proposal can be approved. This matter is at the present time under consideration in the Bureau of the Budget.

a. The Lanham Act has recently been interpreted by the Federal Works Administrator (i) to permit expenditures for all types of children's services instead of limiting expenditures to public works and (ii) as available on the basis of a 100% Federal contribution, relaxing the restriction in the Lanham Act limiting disbursal of funds to those communities which can not provide funds without an excessive increase of the tax burden.

b. In spite of the removal of these restrictions, several factors still limit the effectiveness of a day-care program developed through Lanham

Act funds, including (i) the lack of centralization of responsibility, (ii) the fact that the new interpretation causes the Federal Works Agency to duplicate functions of other existing Federal agencies, and (iii) the specific prohibition in the Act against any Federal supervision of program or control over standards.

Recommendations

At the present time the Bureau of the Budget has under consideration the proposal made by the Office of Defense Health and Welfare Services and a request made by the Federal Works Agency for a deficiency appropriation in order to continue the program of war services under the Lanham Act. It is therefore recommended that the War Manpower Commission:

1. Endorse in principle the type of program proposed by the Office of Defense Health and Welfare Services.

2. Make appropriate recommendations to the Bureau of the Budget that this proposal be given favorable consideration and that Lanham Act funds for services of children of working mothers be limited to capital expenditures, including purchase or construction of buildings, and repairs, alterations and equipment, costing in excess of $1,000 for any project.

3. Make further recommendations to the Bureau of the Budget to allow the Office of Defense Health and Welfare Services a sufficient appropriation from the President's emergency fund, to inaugurate the program.

October 1, 1944

WMC - Bureau of Manpower Utilization
War Industry Employee Services Section

dupe

SELECTED LIST OF LABOR MARKET AREAS WHICH MAY NEED ASSISTANCE IN OBTAINING ADEQUATE CHILD-CARE FACILITIES AND SERVICES

For the purpose of assisting agencies which are interested in child-care programs, we are attaching this month an additional grouping of those areas included in the general list which point particularly towards the existence of child-care problems. These areas are selected on the basis of the following factors also considered in the general list:

Fig. 1 (No. 7 in the General List) - Statement of need for additional child-care facilities.

Fig. 2 (No. 4 in the General List) - Utilization of women in the working force to the extent of 25 per cent or more. (The figure 2 is starred (*) if women make up 35 per cent or more of the working force.) If such a large percentage of women is employed, it may be concluded that mothers constitute a part of war industry employees and that additional day care facilities may be needed.

Fig. 3 (No. 6 in the General List) - High turnover for women (above 10 per cent). Since in most areas where the average turnover rate is above 8 per cent, the rate for women is higher, it might be concluded that there is a particular need for additional or improved facilities (such as day care), the inadequacy of which cause women to be absent or to quit.

Fig. 4 (No. 8 in the General List) - Special recruitment campaigns for women planned or in progress: Particularly in areas where women already make up 35 per cent of the working force, recruitment campaigns to bring additional women into war industry mean that mothers will undoubtedly be employed to a larger extent. Therefore, the presence of this factor could indicate the need for improved day care.

Basis of Classification

The Group I and II areas where assistance may be needed in obtaining adequate day care facilities (numbering 86) are classified in the following manner:

A. Those areas where facilities are reported as being inadequate according to WMC information available - 29.

B. Those areas where facilities are inferred as being inadequate according to WMC information available - 57.

The presence of the various factors involved in the choice of those areas is noted after each area by the appropriate number.

4566

Region III

Group I

B. Newark, N.J. (2,4)

Group II

A. Perth Amboy, N.J. (1,2,4)
Morristown, N.J. (1,2*)
Patterson, N.J. (1,2*)
Pittsburgh, Pa. (1,4)

B. Bridgeton, N.J. (2,3)

Region IV

Group I

A. Washington, D. C. (1,2)

B. Baltimore, Md. (2,3)
Elkton, Md. (2*,3)

Group II

B. Asheville, N.C. (2*,4)

Region V

Group I

A. Pontiac, Mich. (1,2*)
Carton-Massillon-Alliance, Ohio (1,2)

B. Benton Harbor, Mich. (2,3)
Detroit, Mich. (2,4)
Cleveland, Ohio (2,4)

Group II

A. Kalamazoo, Mich. (1,2)
Lansing, Mich. (1,3)
Monroe, Mich. (1,3)
Port Huron, Mich. (1,2)
Saginaw-Bay City, Mich. (1,2,4)
Sandusky, Ohio (1,2*,3,4)
Toledo, Ohio (1,2)

B. Louisville, Ky. (2,3,4)
Battle Creek, Mich. (2,3)
Grand Rapids, Mich. (2*,4)
Owosso, Mich. (2*,3)
Lorain-Elyria, Ohio (2,4)
Youngstown, Warren-Sharon, Ohio (2,4)
Zanesville, Ohio (2*,3)

Region VI

Group I

A. Chicago Hghts-Harvey, Ill. (1,2,3)
Sterling, Ill. (1,2*)
Madison-Merrimac, Wisc. (1,2*)

B. DeKalb, Ill. (2*,3,4)
Kankekee-Joliet, Ill. (2,4)
Quad Cities, Ill.-Iowa (2,3,4)
Rockford, Ill. (2,3)
Springfield-Decatur, Ill. (2,4)
LaPorte-Michigan City, Ind. (2,4)
Logansport, Ind. (2*,3)
Marion, Ind. (2*,3)
Muncie, Ind. (2,3)
Richmond, Ind. (2*,3)

Group II

B. Galesburg, Ill. (2*,3)
Peoria, Ill. (2,3,4)
Connersville, Ind. (2,3)
Indianapolis, Ind. (2*,3)
New Castle, Ind. (2,3)
Appleton, Wisc. (2,4)
Beloit-Janesville, Wisc. (2,4)
Fond du Lac, Wisc. (2*,4)

Region VII

Group I

A. Columbus, Ga. (1,2*,3)

B. Mobile, Ala (3,4)
Macon, Ga. (2*,3,4)

Group II

A. Biloxi-Gulfport, Miss. (1,2*,3)

B. Jacksonville, Fla. (2,3)
Tampa, Fla. (2,3,4)
Augusta, Ga. (2*,3,4)
Jackson, Miss. (2*,3)
Vicksburg, Miss. (2,3)

Region VIII

Group I

Group II

A. Lincoln, Nebr, (1,2*,3)
Sioux Falls, S. Dak. (1,2)

B. Cedar Rapids, Iowa (2,3)
Grand Island, Nebr. (2*,3)

Region IX

Group I

Group II

B. Pine Bluff, Ark. (2*,3)
Wichita, Kansas (2*,3)

Region X

Group I

Group II

B. New Orleans, La. (2,3)
Fort Worth, Texas (2,3)

Region XI

Group I

A. Cheyenne, Wyoming (1,2*,4)

B. Tooele, Utah (2,3)

Group II

A. Salt Lake City, Utah (1,2,4)

B. Pocatello, Idaho (2,3)

Region XII

Group I

A. Los Angeles, Cal. (1,2,3)
San Diego, Cal. (1,2*,3)
San Francisco, Cal. (1,2,3,4)
Ventura-Oxnard, Cal. (1,2,3)

B. Santa Ana, Cal. (2*,3)
Portland-Vancouver, Ore.-Wash. (2,3)
Seattle-Bremerton, Wash. (2,3)
Takoma, Wash. (2,3,4)

Group II

A. Bakersfield, Cal. (1,2*)
San Bernardino, Cal. (1,2*,3)

B. Phoenix, Ariz. (2*,3)
Fresno-Madera, Cal. (2*,3)
Stockton, Cal. (2,3)
Reno, Nevada (2*,3)
Spokane, Wash. (2*,3)

Domestic Workers
(Suggestions for household help - made by Women's Advisory Committee)

ADVANCE RELEASE ---------- ADVANCE RELEASE

McFall-- WMC 3406 PM-4608

WAR MANPOWER COMMISSION

ADVANCE RELEASE:
For Thursday Afternoon Papers,
June 15, 1944.

Cleared and Issued
Through Facilities of the
Office of War Information

Priority on household help for women workers according to the value of their services to the war effort was suggested today by the Women's Advisory Committee of the War Manpower Commission.

The committee also suggested that women who have not already done so, forego the luxury of a full-time maid and share her services with one or more women on war jobs. The committee's endorsement of this idea resulted from consideration of a sub-committee report on community facilities and services in which the scarcity of household help was stressed.

The committee's conclusions were outlined in the following statement:

"The committee is of the opinion that the lack of available household help has been one of the major causes of absenteeism and turnover among women employed on jobs vital to the war effort.

"As the invasion operations proceed abroad, the employment of women and the keeping of them on the job will become increasingly important.

"Women as well as men must be ready to accept jobs for which they are qualified in essential and locally needed activities in the order of their relative urgency to the war effort.

"In many localities greater home assistance must be furnished if large numbers of women are to continue on their war jobs without interruption.

"The committee believes that the careful and intelligent recruitment and referral of women for housework, so that each full-time household worker may render part-time service to the homes of several women workers in essential or locally-needed activity, would have the effect of greatly reducing absenteeism and turnover.

"Priority on household help should be granted to women workers according to the value of their respective services to the war. No departure should be made from the principle of referring workers in the order of the relative urgency of the war effort. The type of industry carried on in a community, the type and production value of workers to be relieved of the necessity for absenteeism or termination, the ability, training and experience of the prospective household worker, and other factors must be considered.

"By making it possible for other workers to stay on the job, many women can render their greatest wartime service."

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END OF ADVANCE RELEASE: For THURSDAY AFTERNOON Papers, June 15, 1944.

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X-30651

U. S. DEPARTMENT OF LABOR
Women's Bureau
Washington

dupe

SUMMARY OF STATE LABOR LAWS FOR WOMEN
August 1944

1. - DAILY AND WEEKLY HOURS

Forty-three States and the District of Columbia have laws limiting the daily and weekly hours of employment in one or more industries.

Five States - Alabama, Florida, Indiana, Iowa, and West Virginia - do not have such laws.

One-half of the States (24) and the District of Columbia have set 8 hours a day and/or 48 hours a week or less as the maximum time a woman may be employed in one or more industries. 1/ In 23 of the 24 States (Kansas is the exception), manufacturing establishments are covered by such standards. South Carolina's statute, however, covers only one branch of manufacturing - textile mills. In Connecticut the maximum workweek is 48 hours for several industries but daily hours may not exceed 8 in mercantile establishments nor 9 in manufacturing plants. The 8-48 hours law in Kansas applies to public-housekeeping occupations and telephone exchanges; in manufacturing establishments, the maximum is 9 hours a day, 49½ hours a week.

Arizona	8 - 48	New Mexico	8 - 48
California	8 - 48	New York	8 - 48
Colorado	8	North Carolina	9 - 48
Connecticut	8 - 48	North Dakota	8½ - 48
	9 - 48	Ohio	8 - 45
District of Columbia	8 - 48	Oregon	8 - 44
Illinois	8 - 48	Pennsylvania	8 - 44
Kansas	8 - 48	Rhode Island	9 - 48
Louisiana	8 - 48	South Carolina	8 - 40 (Men and women) 2/
Massachusetts	9 - 48	Utah	8 - 48
Montana	8	Virginia	9 - 48
Nevada	8 - 48	Washington	8
New Hampshire	10 - 48	Wyoming	8 - 48

Ten States have set a maximum 9-hour day for women and the weekly maximum in all but one of these (Idaho) is 49½, 50, or 54 hours. Arkansas has no weekly hours specified in its statute but it has a 6-day-week provision, which in effect makes a 54-hour maximum week.

Arkansas	9 - 6 days	Nebraska	9 - 54
Idaho	9	Oklahoma	9 - 54
Maine	9 - 54	Texas	9 - 54
Michigan	9 - 54	Vermont	9 - 50
Missouri	9 - 54	Wisconsin	9 - 50

1/ For States with different legal maximum hour standards for different industries, the law establishing the lowest maximum hours was selected for this summary.

2/ Temporarily this law(8-40-5 days) is not being enforced.

1. - DAILY AND WEEKLY HOURS Cont'd.

Eight States have set a maximum day of 10 hours and a week of from 54 to 60 hours. In 2 of these - Georgia and South Carolina - the law applies to one type of manufacturing plants only, cotton and woolen mills.

Delaware	10 - 55	Mississippi	10 - 60 (Men and women)
Georgia	10 - 60 (Men and women)	New Jersey	10 - 54
Kentucky	10 - 60	South Carolina	10 - 55 (Men and women)
Maryland	10 - 60	South Dakota	10 - 54

In one State - Tennessee - the maximum is 10½ hours a day, 57 hours a week. This applies to manufacturing and other industries.

Minnesota has fixed no daily limit in its statute, having only a 54-hour weekly limitation for manufacturing establishments and several other industries.

2. - DAY OF REST

About half the States (23) and the District of Columbia prohibit employment of women for more than 6 days a week in some or all industries. In 2 of these States - Colorado and Utah - the law does not apply to manufacturing establishments.

Arizona	Kansas	North Dakota
Arkansas	Massachusetts (Men and women)	Ohio
California (Men and women)	Louisiana	Oregon
Colorado	Nevada	Pennsylvania (5½ days)
Connecticut (Men and women)	New Hampshire (Men and women)	South Carolina
District of Columbia	New Jersey	Utah
Delaware	New York (Men and women)	Washington
Illinois (Men and women)	North Carolina	Wisconsin (Men and women)

3. - MEAL PERIODS

Well over half the States (27) and the District of Columbia have provided that meal periods varying from 1/3 hour to 1 hour must be allowed to women in some or all industries. This provision applies to manufacturing establishments in all but 4 of these States - Colorado, Illinois, North Carolina, and Washington. The States are as follows:

Arkansas	Maine	Ohio
California	Maryland	Oregon
Colorado	Massachusetts	Pennsylvania
District of Columbia	Nebraska (Men and women)	Rhode Island
Delaware	Nevada	Utah
Illinois	New Jersey (Men and women)	Washington
Indiana (Men and women)	New Mexico	West Virginia
Kansas	New York (Men and women)	Wisconsin
Kentucky	North Carolina	
Louisiana	North Dakota	

4. - REST PERIODS

Rest periods of 10 minutes after a work period of 4 consecutive hours or during each half day are provided for in the laws of Colorado, Oregon, and Utah. These are applicable usually to retail-trade employees. In California if nature of work requires continuous standing, the industrial welfare commission may require that 10-minute rest periods be given after 2 or 2½ hours of work.

5. - NIGHT WORK

Twenty-two States and the District of Columbia have some requirement regarding employment of women at night. The laws of 2 of these States - Maryland and New Hampshire - have no prohibitive period though they do limit the hours a woman may work at night to 8. (The daily maximum in these States is 10 and 10¼ hours, respectively.) New Mexico increases its weekly limit for night work in telephone and telegraph offices to 54 hours (for day work, hours in this industry may not exceed 48).

In 4 States - Arizona, Kentucky, Rhode Island, and Virginia—and the District of Columbia - the only limitation on night work applies to persons (in Virginia and the District of Columbia, girls) under 21 in messenger service.

The following 15 States prohibit night work for women in certain industries or occupations. In Ohio and in Washington only one very small group of women workers is covered, ticket sellers in the former and elevator operators in the latter.

California
Connecticut
Delaware
Indiana
Kansas
Massachusetts
Nebraska
New Jersey
New York
North Dakota
Ohio
Pennsylvania
South Carolina
Washington
Wisconsin

6. - SEATING

Forty-six States and the District of Columbia have seating laws - all but 1 of them applying exclusively to women. Florida's law applies to both males and females.

Illinois and Mississippi have no seating laws.

7. - PROHIBITORY LAWS

/NOTE: - Asterisk preceding entry indicates that application of law is to persons under 21 years of age only./

Alabama: Labor in or about a coal mine.

Arizona: Work in or about a mine, quarry, or coal breaker.

Arkansas: Not to be permitted to enter any mine to work therein.

California: May not mix alcholic beverages containing distilled spirits on premises used for the sale of alcholic beverages, unless she is the licensee or wife of any such licensee.

*Employment of person under 21 on portion of premises used for sale and service of alcholic beverages for comsumption on premises.

Colorado: Employment in or about a coal mine or coke oven except in a clerical capacity.

Connecticut: Employment in any tavern, unless employee is the wife or daughter of proprietor.

Delaware: *Employment of person under 21 in room where intoxicating liquors are sold or dispensed, unless the establishment sells for medical or scientific purposes.

Florida: *Employment of person under 21 in pool room, billiard room, or place where intoxicating liquors are manufactured or sold. Exemptions: Professional entertainers; drug or grocery stores licensed to sell beer and wine for consumption on premises; hotel workers if work is apart from place where alcoholic beverages are sold.

Illinois: Manual labor in or about a mine.

Municipal authorities are empowered to prohibit by ordinance employment of women (other than a licensee or wife of licensee) as dispensers in retail liquor establishments.

Indiana: Employment within a coal mine.

*Employment of person under 21 in any public pool or billiard room.

Kentucky: Employment by retail liquor licensee for duties other than as waitress, cashier, or usher.

Louisiana: Employment in any concert hall or saloon where spirituous liquors, wines, or malt are sold in the dispensing or distributing of such liquors.

7. - PROHIBITORY LAWS Cont'd

Maryland: Employment, other than office work, in connection with any mine.

*Employment of person under 21 in or in connection with any place where intoxicating liquors are sold.

Massachusetts: *Employment of person under 21 in, about, or in connection with a saloon or bar room where alcoholic liquors are sold.

Minnesota: *Employment of girl under 21 as messenger for telegraph or messenger company.

Missouri: Employment within any mine.

Montana: *Employment of person under 21 to serve liquor, beer, or wine.

New Mexico: *Employment of girl under 21 as messenger for telegraph, telephone, or messenger company. Exemption permit may be granted during war emergency.

New Jersey: Employment in the manufacture of nitro and amido compounds. Exemptions: Office, works hospital, or welfare room or building.

New York: Employment in or in connection with a mine or quarry.

*Employment of females under 21 as conductors or guards on any type of railroad.

*Employment of females under 21 as messenger for telegraph or messenger company.

Ohio: Employment as bellhop, crossing watchman, express driver, taxi driver, 3/ jitney driver, meter reader (gas or electric), molder or section hand, or in the following occupations or places:

Baggage handling.
Bar room and saloons or public drinking places which cater to male customers only and in which substitutes for intoxicating liquors are sold.
Blast furnaces; mines; quarries; or smelters; (Except in offices.)
Bowling alleys.
Delivery service.
Freight handling.
Operating freight or baggage elevators.
Pool rooms.
Shoe-shining parlors.

*Employment of girls under 21 in the personal delivery of messages.

3/ The prohibition of taxicab driving was declared unconstitutional by a county court of Ohio in 1928.

7. - PROHIBITORY LAWS Cont'd

Ohio: Cont'd

An Act passed in 1943 effective during the war emergency limits the occupations in which women may not work during the emergency to the following:

Bar rooms and saloons or public drinking places which cater to male customers only.
Bellhop.
Metal molder.
Mines; quarries. (Except in offices.)
Pool rooms.

Oklahoma: Employment underground in the operation of a mine, or in any quarry. Office work exempted if on top of the ground.

Pennsylvania: Reading or testing meters (water, gas, electric).
Messenger for railroads in calling train crews.
Crane operator.
Welding and cutting.
On railroad tracks and at trucking.
Maintaining fires in hand-fired boiler furnaces.

During present war emergency dispensations may be granted by department of labor for any of these occupations.

Employment in or about a mine. (Except in office or clerical work.)

South Carolina: *Employment of person under 21 in a retail, wholesale, or manufacturing liquor business.

Utah: Employment in a mine or smelter. During present war emergency women may be employed at other than underground work in mines and in smelters.

Virginia: Employment in or around a mine or quarry.

Washington: Employment in or about a mine. (Except in clerical or messenger duty about the surface workings.)

Employment as bellhops.

Wisconsin: Employment in or about a mine or quarry.

Employment in place established by court order as a disorderly house or employed to work for any person convicted as keeper of a disorderly house.

*Employment of girl under 21 as bellhop in hotel.

*Employment of girl under 21 as caddy on golf course.

Wyoming: Employment in or about a coal or iron mine or in any other dangerous place. (Except in office or clerical work.)

8. - REGULATORY LAWS

Nine States have some regulation regarding the lifting or carrying of heavy weights by women. These States are:

California
Massachusetts
Michigan
Minnesota
New York
Ohio
Oregon
Utah
Washington

9. - EQUAL-PAY LAWS

Five States have enacted statutes which prohibit discrimination in rate of pay because of sex. Two of these laws - Illinois and Michigan - apply to manufacture only.

Illinois
Michigan
Montana
New York
Washington

10. - MINIMUM-WAGE LAWS

Twenty-six States and the District of Columbia have minimum-wage laws on their statute books. These laws are broad in their coverage of industries, most of them being all-inclusive with a few listed exemptions, usually domestic service and agriculture. The Maine law is the only one of limited scope; it applies to one industry only - fish packing. Most of these laws apply to women and minors, the exceptions being noted in the following list of States:

Arizona
Arkansas (Women and girls)
California
Colorado
Connecticut (All persons)
District of Columbia
Illinois
Kansas
Kentucky
Louisiana (Women and girls)
Maine
Massachusetts
Minnesota
Nevada (Women and girls)
New Hampshire
New Jersey
New York (All persons)
North Dakota
Ohio
Oklahoma (Women)
Oregon
Pennsylvania
Rhode Island
South Dakota (Women and girls)
Utah
Washington
Wisconsin

11. - INDUSTRIAL HOME-WORK LAWS

Twenty States and the District of Columbia have industrial home-work laws or regulations. In all but 3 - Colorado, Oregon, and Utah - and the District of Columbia the law applies to "persons", in these 4 jurisdictions the law applies to women and minors only. The States are:

California	Massachusetts	Pennsylvania
Colorado	Michigan	Rhode Island
Connecticut	Missouri	Tennessee
District of Columbia	New Jersey	Texas
Illinois	New York	Utah
Indiana	Ohio	West Virginia
Maryland	Oregon	Wisconsin

12. - EMPLOYMENT BEFORE AND AFTER CHILDBIRTH

Six States have laws prohibiting the employment of women immediately before and after childbirth. These States and the periods during which women may not be required to work are:

Connecticut:	4 weeks before and 4 weeks after
Massachusetts:	2 weeks before and 4 weeks after
Missouri:	3 weeks before and 3 weeks after
New York:	4 weeks after
Vermont:	2 weeks before and 4 weeks after
Washington:	4 months before and 6 weeks after

WAR MANPOWER COMMISSION - 1945

REPRODUCED FROM THE HOLDINGS OF THE NATIONAL ARCHIVES

Claims data for States and for War Manpower Commission labor-market areas in the accompanying tables are based on telegraphic reports to the Bureau of Employment Security. These data are preliminary and subject to correction. Interweek comparisons should be made with considerable caution since changes in claims levels may be caused by administrative as well as economic factors. Explanation of the major changes was not available as these tables were released. An analysis of the final State data will be included in the August issue of the Bureau's monthly release, Employment Security Activities.

Estimated unemployment compensation claims data, 51 State total 1/ and selected States, week ending July 7, 1945

State	All claims			Initial claims			Waiting-period claims			Compensable claims		
	Week ending June 30	Week ending July 7	Percentage change	Week ending June 30	Week ending July 7	Percentage change	Week ending June 30	Week ending July 7	Percentage change	Week ending June 30	Week ending July 7	Percentage change
Estimated total, 51 States 1/...	277,025	264,818	-4.4	62,473	58,580	-6.2	41,380	37,242	-11.3	172,572	168,996	-2.1
Actual total, 20 States.....	256,257	244,050	-4.8	57,768	53,875	-6.7	39,320	34,582	-12.0	159,169	155,593	-2.2
California 2/.....	35,101	30,679	-12.6	5,459	5,657	+3.6	5,391	4,263	-20.9	24,251	20,759	-14.4
Connecticut.....	7,635	7,563	-.9	2,334	1,791	-23.3	1,323	1,461	+10.4	3,978	4,311	+8.4
Florida.....	3,928	4,449	+13.3	471	3/ 1,208	+156.5	320	324	+1.3	3,137	2,917	-7.0
Illinois.....	25,420	24,875	-2.1	5,580	6,584	+18.0	2,978	2,371	-22.1	16,862	15,970	-5.3
Indiana.....	9,833	9,881	+.5	2,706	2,764	+2.1	1,439	1,226	-14.8	5,688	5,891	+3.6
Kentucky.....	3,840	3,452	-10.1	596	571	-4.2	236	168	-28.8	3,008	2,713	-9.8
Maine.....	2,360	2,191	-7.2	284	193	-32.0	260	144	-44.6	1,816	1,854	+2.1
Maryland.....	2,273	2,096	-7.8	303	300	-1.0	NA	NA	NA	1,970	1,796	-8.8
Massachusetts 4/.....	8,597	8,685	+1.0	2,471	2,803	+13.4	1,547	1,218	-21.3	4,579	4,664	+1.9
Michigan.....	53,290	46,175	-13.4	10,187	8,902	-12.6	5,163	3,710	-28.1	37,940	33,563	-11.5
Missouri.....	3,041	4,102	+34.9	889	1,332	+49.8	524	542	+3.4	1,628	2,228	+36.9
New Jersey.....	13,103	14,174	+8.2	3,535	4,054	+14.7	1,679	1,836	+9.1	7,869	8,284	+5.3
New York 5/.....	54,075	52,569	-4.2	13,667	9,623	-29.6	13,489	12,257	-9.1	27,719	30,689	+10.7
Ohio.....	5,354	5,641	+5.4	1,691	1,954	+15.6	1,346	1,119	-16.9	2,317	2,568	+10.8
Pennsylvania.....	12,567	12,217	-2.8	4,231	2,913	-31.2	2,046	2,197	+7.4	6,290	7,107	+13.0
Rhode Island.....	4,694	3,428	-16.3	1,012	904	-10.7	288	371	+28.8	2,794	2,153	-22.9
Tennessee.....	3,306	3,405	+3.0	607	654	+7.7	253	334	+32.0	2,446	2,417	-1.2
Texas.....	3,462	4,182	+20.8	788	758	-3.8	474	491	+3.6	2,200	2,933	+33.3
West Virginia.....	2,365	2,301	-2.7	463	356	-23.1	73	157	+115.1	1,829	1,788	-2.2
Wisconsin.....	1,813	1,985	+9.5	494	554	+12.1	471	443	-5.9	848	988	+16.5

1/ Estimate includes actual data from 20 States which reported 2,000 or more initial claims for June and projection of weekly average for June for remaining 31 States.
2/ Data are for weeks ending June 28 and July 5.
3/ Includes claims filed by Tampa cigar workers unemployed for short duration.
4/ Data are for weeks ending June 27 and July 4.
5/ Data are for weeks ending June 30 and July 6.

NA Not applicable.
See "unemployment compensation claims data, selected WMC labor-market areas" on other side.

REPRODUCED FROM THE HOLDINGS OF THE NATIONAL ARCHIVES

Area and State	All claims			Initial claims			Continued claims		
	Week ending June 30	Week ending July 7	Percentage change	Week ending June 30	Week ending July 7	Percentage change	Week ending June 30	Week ending July 7	Percentage change
Baltimore, Md.	876	943	+7.6	150	160	+6.7	726	783	+7.9
Boston, Mass.	2,365	2,748	+16.2	717	1,020	+42.3	1,648	1,728	+4.9
Bridgeport, Conn.	548	573	+4.6	148	135	-8.8	400	438	+9.5
Brunswick Ga.	137	91	-33.6	13	10	(1/)	124	81	-34.7
Buffalo, N.Y.	11,642	10,994	-5.6	1,612	1,221	-24.3	10,030	9,773	-2.6
Chicago, Ill.	11,548	10,920	-5.4	2,708	2,532	-6.5	8,840	8,388	-5.1
Cincinnati, Ohio	236	188	-20.3	97	89	-8.2	139	99	-28.8
Cleveland, Ohio	451	413	-8.4	222	175	-21.2	229	238	+3.9
Detroit, Mich.	33,335	28,558	-14.3	6,144	4,640	-24.5	27,191	23,918	-12.0
Duluth, Minn.-Superior, Wis.	185	237	+28.1	24	83	(1/)	161	154	-4.3
Evansville, Ind.	584	873	+49.5	257	338	+31.5	327	535	+63.6
Flint, Mich.	4,141	3,980	-3.9	892	1,147	+28.6	3,249	2,833	-12.8
Fort Worth, Texas	1,039	1,146	+10.3	225	199	-11.6	814	947	+16.3
Hartford, Conn.	1,689	1,408	-16.6	608	431	-29.1	1,081	977	-9.6
Houston, Texas	175	168	-4.0	42	29	(1/)	133	139	+4.5
Indianapolis, Ind.	3,484	2,997	-14.0	802	559	-30.3	2,682	2,438	-9.1
Jacksonville, Fla. 2/	145	181	NA	23	14	(1/)	122	167	NA
Kansas City, Kans.-Kansas City, Mo.	712	746	+4.8	210	184	-12.4	502	562	+12.0
Los Angeles, Calif.	17,122	15,280	-10.8	3,158	3,191	+1.0	13,964	12,089	-13.4
Louisville, Ky., New Albany and Jeffersonville, Ind.	918	1,023	+11.4	242	280	+15.7	676	743	+9.9
Milwaukee, Wis.	745	633	-15.0	252	182	-27.8	493	451	-8.5
Minneapolis-St. Paul, Minn.	274	297	+8.4	57	84	+47.4	217	213	-1.8
Mobile, Ala.	272	NR	NA	60	NR	NA	212	NR	NA
Newark, N.J.	5,990	7,036	+17.5	1,408	1,627	+15.6	4,582	5,409	+18.0
New Orleans, La.	354	280	-20.9	103	81	-21.4	251	199	-20.7
New York City, N.Y.	37,786	35,583	-5.8	10,692	7,082	-33.8	27,094	28,501	+5.2
Paterson, N.J.	3,043	3,362	+10.5	791	979	+23.8	2,252	2,383	+5.8
Peoria, Ill.	1,024	397	-61.2	179	80	-55.3	845	317	-62.5
Philadelphia, Pa.	2,166	2,057	-5.0	627	490	-21.9	1,539	1,567	+1.8
Pittsburgh, Pa.	2,429	2,314	-4.7	586	478	-18.4	1,843	1,836	-.4
Portland, Maine	891	903	+1.3	72	58	-19.4	819	845	+3.2
Portland, Oreg.	465	613	+31.8	102	221	+116.7	363	392	+8.0
St. Louis, Mo.	4,055	4,318	+6.5	1,189	1,490	+25.3	2,866	2,828	-1.3
San Diego, Calif.	4,338	3,218	-25.8	465	446	-4.1	3,873	2,772	-28.4
San Francisco, Calif.	4,609	4,496	-2.5	851	949	+11.5	3,758	3,547	-5.6
Savannah, Ga.	43	44	(1/)	8	9	(1/)	35	35	(1/)
South Bend, Ind.	391	457	+16.9	245	283	+15.5	146	174	+19.2
Springfield-Holyoke, Mass.	318	302	-5.0	113	84	-25.7	205	218	+6.3
Tulsa, Okla.	652	733	+12.4	161	204	+26.7	491	529	+7.7
Washington, D.C.	275	265	-3.6	42	46	(1/)	233	219	-6.0
Wichita, Kans.	320	327	+2.2	71	92	+29.6	249	235	-5.6

1/ Not computed because fewer than 50 claims were reported in either or both periods.
2/ Excludes waiting-period claims for week ending June 30.

NR Not reported.
NA Not applicable

(4433)

REPRODUCED FROM THE HOLDINGS OF THE NATIONAL ARCHIVES

WAR MANPOWER COMMISSION
Washington 25, D.C.

In reply
refer to WMPE

WMC Field Instruction No. 751
Bureau of Placement No. 275
April 3, 1945

TO: All Regional Manpower Directors

SUBJECT: Improved Utilization of Unemployment Compensation Claimants in Critical Labor Market Areas

Attached is a brief summary of a recent War Manpower Commission - Bureau of Employment Security survey of the claims load in 7 critical labor-market areas, the recommendations resulting from the survey, and a statement in general terms of the responsibilities of the United States Employment Service and the State employment security agencies with respect to the referral of claimants. The survey was made to determine the characteristics of persons receiving unemployment compensation benefits, the reasons for their unemployment, and the activities of the United States Employment Service in attempting to place these workers.

The statement of responsibilities outlines briefly existing USES procedures which when in effect, provide for adequate efforts to place applicants, including claimants. Also included are suggestions for joint War Manpower Commission - employment security agency action to arrange for the placement of special groups of claimants, the handling of joint problems, and the checking of local office operations to insure that adequate procedures are in effect.

The attached materials are being released jointly by the War Manpower Commission and the Bureau of Employment Security. It will be noted that provision is made for: (1) solicitation of orders for workers not immediately referrable to openings already on file in the local office; (2) complete registration of applicants not immediately referred; (3) use of active applications in selecting and calling applicants for referral purposes; and (4) joint action to arrange for the placement of union workers during their off season.

It is recognized that identical situations with respect to placement of claimants do not exist in all local offices and, therefore, that the importance of each recommendation varies as it pertains to each labor market area.

Regional directors should take such steps as are necessary to determine the weaknesses in placement activities involving claimants which apply to local offices in their regions and have these weaknesses corrected by application of appropriate suggestions outlined in the attached materials or by other methods when deemed advisable.

Initiated by:

/s/ John K. Collins
Director, Bureau of Placement

/s/ Robert C. Goodwin
Executive Director

B and D Distribution

5042

REPRODUCED FROM THE HOLDINGS OF THE NATIONAL ARCHIVES

EMPLOYMENT SERVICE AND UNEMPLOYMENT COMPENSATION

OPERATIONS IN 7 LABOR-SHORTAGE AREAS

A Study of the Characteristics of Unemployment Compensation Claimants and the Activities of the United States Employment Service with Respect to Claimants

Relatively larger numbers of workers have been filing unemployment compensation claims in some areas classified as critically short of labor by the War Manpower Commission. To determine the characteristics of persons receiving unemployment benefits, the reasons for their unemployment, and the activities of the United States Employment Service with respect to their placement, the War Manpower Commission and Bureau of Employment Security of the Social Security Board made a joint survey of 7 such labor-shortage areas.

In each of these areas, a 10 percent or larger sample of claims filed during a single week in February 1945 was selected. In 5 areas, samples included only compensable claims filed during the week ended February 10; the samples for the other 2 areas, however, include some workers who were disqualified and therefore received no benefits. In 2 areas, it was necessary to obtain the required information from the claimants as they filed claims. In these areas, the samples include claimants who filed waiting-period or compensable claims during the week ended February 17.

Claims Trends in the 7 Areas

The number of workers filing claims in 2 areas have been strikingly high in the past 4 months. In the other 5 areas, although claims increases have not been so noticeable, the number of claimants may be considered high in view of the number of unfilled job openings reported to the War Manpower Commission.

Sex and Age of Claimants

A majority of the unemployment compensation claimants in each of the labor-shortage areas during the survey weeks were either women, or men over 55 years of age. The proportion of women claimants in these areas ranged from 28 percent to 87 percent. Women alone made up more than half the claim load in 4 areas.

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More than 40 percent of the men claimants in every area were over 55 years of age; this proportion was as high as 53 percent in one area and 55 percent in another. More than 20 percent of the men in 2 areas were over 65 years of age. In none of the areas was more than 21 percent of the male claimants under 39 years of age. Only 8 percent of the men in 2 areas, 10 percent in one, and 11 percent in another were under 39. The median ages of the women in each of the areas were: 40 in two; 48 in two; 34 in one; 35 in one, and 36 in the other area.

Duration of Benefits

In the main, benefits had been drawn by the unemployment compensation claimants for short periods. In 4 areas, the average claimant had drawn benefits for less than 5 weeks. In 2 areas, the average benefit duration was about 6 weeks, and in the other area about 7 weeks.

In 5 of the areas there was little difference in the number of weeks of benefits received as between men and women. In one area, however, men had drawn benefits for only 3.8 weeks on the average, while the average woman claimant had received 4.6 unemployment compensation checks. The difference was most striking in another area where the average benefit duration was 5.1 weeks for men, and 8.0 weeks for women claimants. Even in the other 3 areas, where average duration for men and women claimants were about equal, larger proportions of women than men received benefits for more than 12 weeks. In one area, for example, 19 percent of the women claimants, compared with 9 percent of the men claimants, had drawn benefits for 13 or more weeks.

The average duration of benefits of veterans claiming readjustment allowances was greater in 2 areas and lower in one area, than the average for male unemployment compensation claimants. In 2 areas the average claimant for readjustment allowances had drawn only 4 checks, compared to the 6 checks drawn by the average male unemployment compensation claimant. In 2 other areas, on the other hand, veterans drew 3 or 4 more checks, on the average, than male unemployment compensation claimants.

Occupational Characteristics of Claimants

In none of the areas were as many as half the claimants in skilled occupations. The largest percentage of skilled workers found in any area was 48 percent. The bulk of these, however, were seasonally unemployed construction workers. In the other areas, the proportion of skilled workers among unemployment compensation claimants ranged from only 9 percent to 35 percent. The proportion of claimants who had skills in the metal-working, electrical, and transportation-equipment industries was no higher than 10 percent in any of the areas. Semi-skilled workers were found in varying proportions among the claimants. This proportion was as high as 57 percent in one area, but as low as 15 percent in two others.

In 5 of the 7 areas, more than half the men were skilled or semi-skilled. On the other hand, only about one-third of the men in these areas were in skilled or semi-skilled classifications other than construction.

Outside of the 2 areas excluded above, more women were classified as semi-skilled than in any other category. The proportion of women claimants who were semi-skilled ranged from 24 percent to 63 percent.

The striking characteristic of the claims load in 2 areas was the high proportion of "white-collar" workers. More than two-thirds of the unemployment compensation claimants in these areas were in professional, managerial, clerical, sales, or service occupations. This proportion was even higher (75 percent) for the male claimants in these areas.

Another area reported relatively large proportions of claimants in the clerical, sales, and service occupations. Thirty-six percent of the men and 46 percent of the women claimants in this area fell in these occupational classifications.

Veterans were more evenly distributed among the occupational classifications. In 2 areas, more than 30 percent of the readjustment allowance claimants were unskilled, and only 12 and 17 percent respectively, were skilled. In 2 other areas, on the other hand, 56 percent of the veterans were skilled or semi-skilled.

Industrial Attachment of Claimants

As suggested by the occupational characteristics of the claimants, large percentages of the claimants in 4 areas (from 21 to 41 percent) were attached to the construction industry. The percentage of male claimants in these areas who worked in construction ranged from 41 percent to 56 percent. In fact, in 5 of the 7 areas, construction workers had a greater representation among the male claimants than any other industrial group.

Most of the other claimants - again in 5 of the 7 areas -had been engaged in manufacturing employment. A fourth of the men and 70 percent of the women claimants in one area had been separated from firms producing aircraft and other transportation equipment. The percentage of men claimants separated from munitions industries ranged from 17 percent to 46 percent. Women claimants last employed in these industries constituted from 16 to 90 percent of all the women claimants.

In contrast to the situation revealed in the other areas, almost half the claimants in 2 areas had been employed in trade, finance, insurance, real estate, and service industries.

The readjustment allowance claimants were more evenly distributed over the various industrial groups. Only 25 to 36 percent of the veterans had been attached to the manufacturing industries.

Registration and Referral Activities

Except in one area, it is the practice of the War Manpower Commission to maintain an application-for-work file for all claimants. In most cases, these applications are skeletons. In spite of the fact that local offices have in their files applications for work for a high percentage of the claimants, these applications are only rarely used for call-in purposes and seldom referred to for any other purposes.

The application for work did not contain a complete record of referral activities of the applicants. Referral-activity records were incomplete in most areas. The percent of unemployment compensation claimants not referred ranged from 52 percent to 84 percent. Because claimants (other than union workers and the aged in some areas) are required to report weekly to the placement counter for possible referral, it can be assumed that a much higher percentage of claimants had been told of job openings, and in a sense offered referral. Since these possible referrals were merely discussed and not definitely offered to the claimants, no record was made of the activity.

Since in only a few cases was a record of such information available, the distribution of reasons for non-referral of claimants represents a joint determination of the representatives making the survey and local office personnel. In 4 areas, the dearth of available jobs using the claimant's highest skills and paying wages as high as those last received by the claimants (both men and women) was the primary reason for non-referral. Age of claimants and lack of skills usable in essential and less-essential industry (rarely were orders solicited from less-essential or non-essential industry) were the significant reasons for non-referral of men in 3 other areas.

In 2 areas, a large percentage of the women (40 and 37 percent respectively), were drawing benefits for partial unemployment, and therefore were not referred. In one area, 50 percent of the women were not referred because of their prospective return to former employers, their present unemployment being seasonal. Wage differentials between last employment and available openings was the only determinable reason for non-referral of the women in one area. It was also a significant reason in 2 other areas.

Selectivity of types of work desired, lack of usable skills, and physical handicaps were the outstanding reasons for non-referral of "G.I." claimants.

In one area, 61 percent of the unemployment compensation claimants referred to jobs were rejected by the employer; only a slightly higher percent of women than men were thus rejected in this area. 1/

1/ It should be noted that the following discussion of referral activity relates only to referred claimants still drawing benefits or filing waiting-period claims. Claimants previously referred to jobs and hired for such jobs are not included in the sample. Thus, the quoted percentages do not indicate the proportion of all referred claimants who refused referral or were rejected by employers.

In the other areas, the proportion of referred unemployment compensation claimants turned down by employers ranged from 11 to 18 percent. In one area, none of the "G.I." claimants had been turned down by employers; in the other areas, from 18 to 50 percent of the veterans referred to jobs were rejected by employers.

By far the major reason for claimants' refusals to accept a referral to a job or an actual job offer was the discrepancy between wage and hour conditions enjoyed in the most recent employment, and those in the offered employment. Wages or hours was given as the main reason for refusal by 73 percent of 2 areas, 46 percent of 2 others, and 58 percent of another. In 2 areas considerably larger proportions of men than women listed wages or hours as the main reason for job refusal.

The next major set of reasons for job refusals were those which are classified as "personal." While these are termed "personal" they relate as much to conditions of the work offered as wage or hour conditions. Thus, "personal" reasons included difficulties of transportation from the place of residence to the offered job, the time of the shift, and unwillingness to accept a job outside the claimant's usual occupation. Such reasons were particularly significant in 2 areas where they represented 19 and 32 percent, respectively, of all the reasons for job refusal.

Summary

In general, workers drawing benefits in the 7 labor-shortage areas were marginal workers (last-hired, first-fired), or seasonally unemployed workers, or workers standing by during temporary plant shutdowns. The majority were women, or men over 55 years of age. Most of the claimants were not classified as skilled; 10 percent or less were skilled workers in the metal-working, electrical, and transportation-equipment industries. In 6 of the 7 areas, on the other hand, one-third or more of the male claimants were construction workers. In 2 areas, a large percentage of the claimants were white-collar workers.

The placeability of many of these claimants has been limited by tightening employer specifications as to age, sex, race, and experience. Others, having no skills usable on job openings in essential and less-essential industries, would benefit from more extensive retraining programs. Where jobs have been offered claimants, wide discrepancies in the wages offered and the wages last earned have interfered with reemployment. The referral of construction workers (majority are union members) to war jobs necessitated in most cases their acceptance of non-union jobs at lesser skills and paying from one-half to two-thirds their normal wages.

Despite these conditions, the workers surveyed have not, in general, been drawing benefits for long periods. Duration of benefits had averaged 4 to 7 weeks. At the same time, modifications (outlined in recommendations) in local office policies and procedures are possible, which will speed up reemployment of many of the beneficiaries.

Recommendations

Under present War Manpower Commission and State unemployment compensation agency policies and procedures relating to spot placement, application for work, union relationships, claims interviewing, and claims record-keeping, there appears to be sufficient reason for the claim load in the critical labor areas studied. Taking into consideration such factors as the physical and occupational characteristics of the claimants, labor demands, possible inflation of labor demands by war plants, referral policies, unemployment compensation laws, etc., we are of the opinion that practically all claims being paid are bona fide. However, by insuring that present procedures are in fact carried out, and by taking additional steps (such as improving claims taking and hence the making of determinations), we believe that more claimants could be placed in suitable employment. The following recommendations should bring about a better utilization of claimant manpower in all of the critical labor areas surveyed. Because identical situations do not exist, the importance of each recommendation as it pertains to each labor-market area varies.

Provision should be made for:

1. Closer cooperation between unemployment compensation agencies and State and local War Manpower Commission offices. Included should be consultation on policy and procedural matters directly or indirectly affecting each agency, informing staff of each agency of the policy and procedures of the other, coordination of policy and procedures at the local office level, and the interchange of personnel where possible and necessary. Each agency should be advised of the needs of the other and requests for information should be followed up to insure that adequate information is received.

2. Joint action to effect employer, War Manpower Commission, labor union, and unemployment compensation agency agreements arranging for the placement of union members (especially construction) during seasonal layoffs and providing for notification to unemployment compensation agencies of referral actions by the union and information regarding availability for work, etc. in those cases where the union has been granted referral authority.

3. Preparation of complete employment applications for all claimants for whom no job is available at the time of their first visit to the local office. The purpose of this recommendation is to make possible referrals utilizing secondary or pre-war skills.

4. More intensive solicitations of orders and attempts to channel through local offices orders from war employers now hiring women at the gate.

5. Convincing employers of the necessity for hiring workers whose skills, age, sex, or race varies from the employer's "desirable" specifications.

6. Quicker inter-office clearance of available openings in cities with several offices. Under present practice, workers registered in offices other than the order-holding office have an opportunity for referral only after an unreasonable lapse of time, or as a last resort in an emergency.

7. Increased efforts to place applicants reporting at itinerant points or by mail.

8. More effective selling of available openings to applicants on an individual basis.

9. Definite job referral, instead of discussing several job openings and an indefinite offer because of some referral limitation expressed by the claimant.

10. Complete reporting to the unemployment compensation agency of every claimant, job refusal, referral refusal, or failure to respond to call-in.

11. More complete recording of claim information such as referrals, refusals, availability questions, determinations, etc. on local office claim record cards. In many areas, refusals and other questions are treated as individual cases and no record is available, as a guide, to the claims interviewer during succeeding claim visits.

12. Improvement of claims interviewing by asking claimants questions designed to elicit information for use in determining availability. Many claimants in the sample had turned down several job offers, thus raising a question as to their availability; because of the sketchy and stereotyped claims interview given them, however, the possibility of their unavailability was never properly investigated.

SUGGESTIONS FOR IMPROVING EMPLOYMENT SERVICE-

UNEMPLOYMENT COMPENSATION HANDLING OF CLAIMANTS

The procedures and suggestions outlined below are presented in three parts. Part I outlines in general terms those local employment office procedures already provided, which if in operation, insure that every reasonable effort will be made to place all applicants for jobs. This part refers to survey recommendations 3, 4, 7, 8, 9 and 10.

Part II suggests joint action between State Employment Service and unemployment compensation agencies; to insure that procedures provided are followed; to coordinate policies and procedures at the local office level; and to work out mutual problems such as the utilization for referral purposes of certain groups presenting special problems. This part implements recommendations 1, 2, and 5.

Part III suggests briefly certain procedures which are the responsibility of unemployment compensation agencies and which will insure that benefits are paid only to persons entitled to them. This part refers to recommendations 11 and 12.

I. United States Employment Service Responsibilities

The steps outlined below for insuring placement of all applicants by local employment offices whenever possible are provided in War Manpower Commission headquarters instructions to the field (United States Employment Service Manual, Supplement 1, Revised December 1, 1943). The joint War Manpower Commission-Bureau of Employment Security Survey of the claims load in 7 critical labor-market areas revealed that pressure on local office staffs occasioned by increased traffic has resulted in departures from established procedures. To implement the survey recommendations and assure proper efforts to place claimants, it is essential that local employment offices accomplish the steps provided for in established procedures. These include:

1. Determination by counter interviewer of skills possessed by the applicant.

2. Discussion of openings (in order of priority) in occupations which the applicant is qualified to fill. This instruction was not intended to exclude non-priority and less-essential openings if the applicant is not qualified for, or has good cause for refusing, available openings in essential activity.

3. Routing of applicants to other counter stations for possible referral on open orders in occupations for which applicants might qualify on the basis of a secondary or related skill.

4. Routing of the applicant to desk interviewers (or persons performing their functions), for further placement effort as follows:

   a. Check application files to determine whether applicant was previously registered;

   b. If application record is on file, bring application up to date by adding significant employment information, correcting address, etc.;

   c. If application was not previously filed, prepare a complete application;

   d. Reconsider possibility of referring applicant to any of the job openings held by counter interviewers;

   e. Request Employer Relations Division to solicit an order for the individual applicant, if referral (step "d") on available orders is not possible. This solicitation is not limited to priority employers. It should be extended to non-priority and less-essential employers if necessary;

   f. If referral does not result from the foregoing steps, the application card is to be filed in the active section of the application file.

   g. Desk interviewers are responsible for the full utilization of the active application file for selection and referral to supplement the supply of applicants provided by current intake.

6. Transmittal of a "notice of referral" to unemployment compensation claims personnel for those unemployment compensation claimants referred to a job at any point in the procedure.

7. Notification to unemployment compensation agencies of refusals to accept referrals, jobs, or call-ins are also provided for. This notice should be on forms provided by the unemployment compensation agency, and this notice should supply them with sufficient detail to permit determination.

8. Convincing employers of the necessity for hiring workers whose skills, age, or race varies from the employer's "desirable" specification. (Sections 3130-3246, Part II, United States Employment Service Manual.) These instructions should be reviewed and supervisory personnel in local offices should take necessary action to insure that these instructions are followed by staff members taking orders.

II. Suggested Arrangements for War Manpower Commission - Bureau of Employment Security Coordination

To achieve closer cooperation between unemployment compensation agencies and state and local War Manpower Commission offices, the following actions are suggested:

1. The establishment of a Coordinating Committee, composed of State office representatives of both agencies. The Committee should meet regularly and consider problems needing attention or any matter of interest in which both agencies are concerned.

   Problems brought before the Committee upon which it lacks authority to act, such as matters involving a change of policy on the part of either agency, should be submitted by the group representing each agency to the appropriate administrative heads of their respective agencies for decision and direction as to action to be taken.

   The designation of one member of each agency through whom urgent matters should be cleared during the interval between regularly scheduled meetings. This person acts in a liaison capacity but should not be given independent authority to make commitments for his agency.

2. Arrangements for joint periodic studies of local office operations relating to claimants to determine whether or not this activity is being performed in accordance with established procedures and to evaluate the effectiveness of the operations. Field supervisors of both agencies could be assigned this responsibility.

3. Clearance of new policies, procedures, and programs when these affect the other agency.

4. Arranging for joint staff meetings of personnel of both agencies assigned to local offices to be held whenever new procedures affecting both groups are introduced or when problems are discovered in connection with procedures already established.

5. Provision for free interchange and discussion by local office personnel of both agencies, of procedures and problems.

6. Some States have already succeeded in establishing agreements with labor organizations arranging for the placement of union members during a seasonal lay-off and providing for notification of the unemployment compensation agency of referral actions by the union and information regarding availability for work in those cases where the union has been granted referral authority. In those States where such arrangements have not been made, State office representatives

from both agencies should be designated to negotiate these agreements with State officials of the appropriate unions. Local office managers and unemployment compensation staff members assigned to local offices should be instructed to arrange jointly similar agreements with appropriate local union officials.

III. Unemployment Compensation Agency Responsibilities

The foregoing procedures and cooperative arrangements will insure that all applicants for jobs (including claimants) are exposed to job opportunities. The follow-through after a referral or a refusal is the primary responsibility of the unemployment compensation agency. This follow-through consists of complete investigation of claims involving referral questions, recording of referral and availability information, and effective claims interviewing.

1. Complete Investigation of Claims Involving Availability or Referral Questions

In this material, we are concerned only with investigation of availability questions and cases involving referrals and refusals. The investigation begins, of course, with a notice from the Employment Service regarding a referral or the refusal of the claimant to accept a call-in, referral, or job. The unemployment compensation agency is primarily responsible for the type and completeness of the data obtained from Employment Service personnel. In the first instance, the unemployment compensation agency plans the forms for obtaining such information, and should then work out with the United States Employment Service personnel the plan for obtaining the properly completed forms from the USES. It is also the agency's responsibility to go back to the local office Employment Service placement staff for more information in those cases where that supplied is inadequate and to call consistent deviations from approved procedures to the attention of Employment Service State headquarters staffs.

During the recent War Manpower Commission - Bureau of Employment Security claim study, many instances were observed where the Employment Service route slip gave information regarding availability limitations to the unemployment compensation agency, but where no effort was made during the claim interview to elicit further information from the claimant for an availability determination. In other cases, information which was available to the United States Employment Service regarding the claimants' availability was not furnished to the unemployment compensation agency because of the absence of a procedure requesting it, and because of the lack of a knowledge of its usefulness.

We suggest that State agencies reappraise their procedures for obtaining from the Employment Service information regarding:

a. Availability limitations of claimants

b. Referrals

c. Refusals to accept call-in, referral, or a job.

Such reappraisal might include review of procedures and forms, and field review of the procedures in operation. Following that review, it may be worthwhile to conduct joint meetings for ES and UC local office personnel to explain the procedures of each agency, the need for the data and its uses.

2. Recording of Referral and Availability Information

We suggest that upon receipt from the United States Employment Service of information regarding limitation of a claimant's availability, referral, or refusal of a call-in, referral, or a job, appropriate notations be made on the claim record card. These notations should be sufficiently detailed to provide the claims taker with clues to be followed up at the time of the claimant's next visit. In the case of a referral, the notation might include date of referral, employer's name, occupational classification, and wage rate. Upon notice from the Employment Service of the outcome of the referral, the entry would be completed with "job filled," "not qualified," or similar appropriate entry. Suitable notations should also be made for refusals, availability limitations, and other types of data reported.

3. Effective Claims Interviewing

Notices of referral actions or limitations of availability from the Employment Service merely serve to point up possible disqualification questions. The agency is responsible for confirming the information received, obtaining necessary additional information, recording the facts, and making the decision. In spite of the fact that claims involving possible disqualifications are usually handled by special personnel, the claims taker controls the segregating and routing of these special cases, and in a sense makes a determination in that if he does not have information because of a poorly conducted claims interview or does not have a record of leads supplied by the Employment Service, the claimant is not referred to a special interviewer and the claim is accepted. It is essential that claims takers ask questions designed to obtain information necessary for the determination of the claim in accordance with the requirements of the State law. We suggest that a review of claims interviewing be included in the periodic joint ES-UC check of local office operations recommended in the previous section.

September 7, 1945

Mrs. May Thompson Evans
Special Assistant, Field Service
War Manpower Commission
Room 923, 1778 Pennsylvania Ave.N.W.
Washington, D. C.

Dear Mrs. Evans:

A little complication on some of my office mail has suddenly led me to discover that there is in the telephone book someone with my identical name, even to the middle initial, and an address that has nothing whatsoever to do with me.

That discovery explained what had vaguely bothered me before, namely, the original address on the note I got from you a bit ago with enclosures. I think I answered it on my home stationery, but in case you didn't notice, I am still at the Brighton Hotel, 2123 California Street.

Cordial greetings,

Frieda S. Miller, Director

FM:IS

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

To—		From—	Re Attached Please—
✓	~~Hilles~~		
	~~Anderson.~~		Approve
	~~Nienburg.~~	✓	Comment
	Larrabee.		Note
	~~Perkins~~		Note and return
	Best.		Reply
✓	~~Erickson.~~		Draft of reply
	Files.		Signature
✓	~~Hyde.~~		Would like to discuss
✓	~~Manning.~~		File
	Mettert.		Date to Files
	~~Pidgeon.~~		Note
	~~Robinson.~~		
	Smith, F.		
✓	~~Spring.~~		
	Steel.		
	Stitt.		

OPO 14—3769

✓ August

Please return to Robinson

Form WMC-87 (7-44) ROUTE SLIP

(Fold here)

WAR MANPOWER COMMISSION

Date 1/29

To: Mrs. Nyswander

Remarks: Here's the mat. service recom.

Dr. Price

WOMEN'S BUREAU. JAN 30 1945 DEPARTMENT OF LABOR

From:

U. S. GOVERNMENT PRINTING OFFICE : 1944—O-602659

Gen. No. 22

SPECIAL

Authority of

U. S. GOVERNMENT PRINTING OFFICE 14—3748

6-1-7

NATIONAL SERVICE

Members of the Women's Advisory Committee to the War Manpower Commission in meeting Tuesday, January 16, 1945, were polled as to their opinion with respect to the need for National Service legislation. Eight of the eleven members present favored a National Service Act, which would totally mobilize the manpower and the womanpower of the Nation. The Committee believed that such legislation would not interfere with the retention of manpower regulations that have proved effective, but would strengthen current programs.

The Committee registered its opposition to "work or fight" or any other legislation at the present time that does not include women as an integral part of the labor force.

The Committee recommended that National Service legislation --

(1) Impose upon all the duty to serve in work contributing to the successful prosecution of the war and to continue in such employment with penalty for failure to so train or work.

(2) Obligate employers to accept upon referral by the proper Government agency all persons thus required to serve without discrimination because of sex, race, creed, or marital status.

(3) Give broad general powers so that rules and regulations may be developed to provide humane and expeditious administration; and that the responsibility for administration be delegated to the War Manpower Commission.

(4) Provide for transfer of workers from surplus to shortage areas wherever all local resources have been exhausted, with payment of suitable traveling expenses and allowances and assurances of reasonably suitable living and working accommodations.

(5) Provide for protection of seniority, with accumulated seniority and reemployment rights fully preserved and safeguarded, during absence for persons transferred from one employment to another.

In considering the problem of women, the Committee recommended, among other hardship exemptions, the exemption of women with children under sixteen years of age. It also recommended no age differential between men and women.

The Committee further voted to make a public statement with respect to its position on the President's proposal for National Service legislation.

The minority of the Committee which offered opposition to National Service took the position that there are still untapped sources of labor, that the best utilization has not been made of the labor force to date, that people react better under a voluntary than a compulsory system, and questioned just how much production would be speeded up under a policy of force.

WOMEN'S BUREAU
JAN 30 1945
DEPARTMENT OF LABOR

copied and sent to regional offices by Miss Manning

War Manpower

WAR MANPOWER COMMISSION

WASHINGTON 25, D. C.

July 30, 1945

NATIONAL ROSTER
OF SCIENTIFIC
AND SPECIALIZED
PERSONNEL

In reply, please refer to:

FILE WMPR:EART:oem

REGISTRATION No.

Mrs. Marguerite W. Zapoleon
Labor Economist, Women's Bureau
U. S. Department of Labor
Washington 25, D. C.

Dear Mrs. Zapoleon:

In response to your request of July 21, 1945, for a complete set of the 5" x 8" Descriptions of the Professions prepared by the National Roster, we are enclosing a set of those now available.

We have placed your name on our mailing list and you will receive the Descriptions as they are published.

Very truly yours,

George A. Works

George A. Works
Director, National Roster

Enclosure

files

War Manpower

July 21, 1945

Dr. George A. Works, Director
National Roster of Scientific and
Specialized Personnel
War Manpower Commission
Washington 25, D.C.

Dear Dr. Works:

We should like very much to continue to receive copies of the Handbooks the National Roster is publishing.

Thank you very much for sending those which accompanied your letter of July 13th. We shall find them very useful as reference material.

We should also like very much to have a complete set of the double 5 by 8 cards prepared by you for the Bureau of Placement. We have a few samples on hand but the complete set would be very useful to have in our office for reference use.

Yours sincerely,

Marguerite W. Zapoleon (Mrs. L.B.)
Labor Economist

MWZ/ml



WAR MANPOWER COMMISSION

WASHINGTON 25, D. C.

July 13, 1945

NATIONAL ROSTER
OF SCIENTIFIC
AND SPECIALIZED
PERSONNEL

In reply, please refer to:

FILE WMPR:EART:oem

REGISTRATION No.

Mrs. Marguerite Zapoleon
Women's Bureau
Department of Labor
Washington 25, D.C.

Dear Mrs. Zapoleon:

Enclosed are copies of the Handbooks published by the National Roster to date and a list of the titles of those in preparation.

Although these are primarily for use in the Roster's classification and placement activities, we have a limited number for distribution to outside organizations. We felt you would be interested in seeing these and we will be glad to put you on our mailing list if you want the rest of the series.

Very truly yours,

George A. Works

George A. Works
Director, National Roster

Enclosures

War Manpower

June 28, 1945

Mr. Leon Lewis
Division of Occupational Analysis
War Manpower Commission, Room 751
1778 Pennsylvania Ave. N. W.
Washington 2, D. C.

Dear Mr. Lewis:

In the preparation of our bulletin on the outlook for women as dental hygienists, Mrs. Zapoleon has secured an additional definition of the dental hygienist, through her contacts with Miss A. Rebekah Fisk, Secretary of the American Dental Hygienists' Association, and Dr. A. Harry Ostrow, Director, Bureau of Dental Service, District of Columbia Health Department.

Miss Fisk has give us permission to use the definition as the official one of the American Dental Hygienists' Association.

The definition follows:

Dental Hygienist as Defined by
The American Dental Hygienists' Association

Dental Hygienist; public health educator and oral prophylactician; college trained and legally qualified auxiliary dental personnel. Promotes dental health through educational activities in schools, clinics and institutions. Performs operative prophylaxis for removal of stains, accretions and calcareous deposits from the surfaces of teeth and other preventive services consistent with the respective State dental laws.

Sincerely yours,

Elsie Katcher
Research Assistant

EK:sl

CROSS REFERENCE SHEET

Name or Subject

War Manpower - - - - - -

File No.

Regarding

Date

letters in re empl. of women in Calif. clipping, etc. May 1945

SEE

Name or Subject

Sec. Labor

File No.

213

File cross reference form under name or subject at top of the sheet and by the latest date of papers. Describe matter for identification purposes. The papers, themselves should be filed under name or subject after "SEE."

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WOMEN'S BUREAU
Washington

Files

Respectfully referred to

War Manpower Commission
Washington, D.C.

Copy of letter from:

Miss Elizabeth Blake
c/o Unger
2466 Marion Avenue
Bronx 58
New York

Re: Women in Racetrack

The writer has been informed of this reference.

(1990) Director

Files
W. Manpower

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

May 22, 1945.

Miss Mary Robinson
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Robinson :

Enclosed is the file copy of the "Final report of the Philadelphia Institute on Household Occupations," which you were kind enough to lend me some time ago.

Than you very much for all your courtesies.

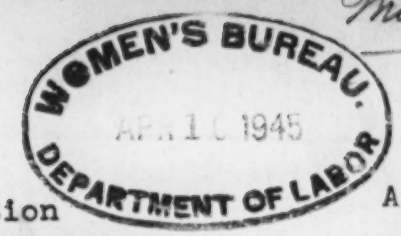
Sincerely yours

James R. Branson

James R. Branson.



Mary V. Robinson



Mr. Charles G. H. Evans
Asst. Director of Information

April 13, 1945

Raymond S. Brooks, Field Assistant

RSB:se

Memo from Mary V. Robinson (Women's Bureau) Respecting Information to Prepare Exhibits on Community Planning Day, Louisville, Kentucky, April 27

The attached letter from the War Manpower Commission office at Louisville, Kentucky, seems to answer the questions asked in Miss Robinson's memorandum of April 7.

I believe the albums that Miss Robinson speaks of will be very helpful for this event.

I would like to take this occasion to thank Miss Robinson for her very excellent help in this coming program, particularly for her advising me that the publications requested by this office are being forwarded. Knowing this material is on the way makes it possible for me to advise the sponsors of this event as to space desired.

Attachment:
Letter dated 4/12/45
(2 copies)

Ask
I wie ~~f~~ yee didn't you
send the chart ~~history~~
of mm. wage by!
~~to~~ Mr. Brooks

Mrs. Evans said
O.K. he would tell
Mrs. Brooks that
this chart was being
sent. May 12,

Ask Myrtle [illegible]
Mrs. Brooks were returned

COPY

WAR MANPOWER COMMISSION
State Office

620 South Fifth Street
Louisville 2, Kentucky

April 12, 1945

WOMEN'S BUREAU
APR 16 1945
DEPARTMENT OF LABOR

Mr. Raymond S. Brooks, Field Assistant
U. S. Department of Labor
504 Medical Arts Building
Nashville 3, Tennessee

Dear Mr. Brooks:

In reply to your letter of April 9, we are submitting the following information relating to the employment of women in industry in the Louisville area.

1. Women are employed as conductors and, in some instances, as motormen by the railway company in the operation of street cars. Also, in a few instances women are operating busses.

2. At the airport women are employed as receptionists, traffic controllers, and in various other capacities. Fixed localities of railroads are also utilizing women workers. In the shops and roundhouses women are employed as wipers, oilers, greasers, and other types of laborers. In the freight offices and stations they are employed as mail clerks, ticket sellers, billing clerks, etc.

3. The following army installations are located in or near Louisville: Jeffersonville Quartermaster Depot (army supply depot), Bowman Field (convalescent hospital), Nichols General Hospital (army hospital), Louisville Medical Depot (medical depot), and Fort Knox (army post). All of these installations employ women in various capacities.

4. Women employed in the garment factories work on uniforms and other clothing for the armed forces.

5. Very few negro women were employed in manufacturing establishments in the Louisville area prior to the war. However, due to the industrial expansion in the area and the accompanying increase in demand for workers, a number of plants are now utilizing negro women. Examples are as follows:

C
O
P
Y

Mr. Raymond S. Brooks April 12, 1945

a. Indiana Ordnance Works - mixer operators, tub operators, tub helpers, attendants.

b. Hoosier Ordnance Works - sewing machine operators and inspectors.

c. Jeffersonville Boat and Machine Company - welder helpers and helpers in other capacities.

d. Jeffersonville Quartermaster Depot - clerks, timekeepers, storekeepers, automobile mechanic helpers, checkers, laboratory aids, stackers, laborers in warehouses, various capacities in the textile department, etc.

e. National Distillers - packaging department.

f. Brown and Williamson Tobacco Company - various capacities in the process of manufacturing cigarettes.

g. Mengel Company - paint dippers, woodworking machine operators, nailers on crates for jeeps, and in the cafeteria.

h. Kane Manufacturing Company - power sewing machine operators on clothing for armed forces.

i. Logan Company - assemblers for army cots.

j. DuPont Neoprene - milling machine operators.

In addition the local USES office has succeeded in securing the employment of negro women in fertilizer plants to relieve the shortage of workers in this urgent type of production. They are employed in the capacity of stackers, operators of power driven shovels for unloading cars, etc. Also, a few negro women are employed in the roundhouses and shops of railroads as wipers, oilers, cleaners, etc.

The status of women in industrial employment in the Louisville area, as in many other areas, has undergone a significant change since the beginning of the war. Prior to the beginning of the war few establishments in the Louisville area employed women. The tobacco, distilling, and clothing industries comprised the major portion of industries which utilized women to any extent. That situation is

COPY

changed entirely today, and practically all plants have women employed in numerous capacities. Some establishments which are engaged in heavy-type production such as forgings and airplane castings are employing women on heavy machines. Previously the opinion had been that such jobs were not suitable for women. However, in most cases employment is open to women in jobs which require not more than 40 pounds lifting.

Very truly yours,

/s/ W. H. Fraysure
W. H. Fraysure
State Manpower Director
War Manpower Commission

EN:mj

Mr. Evans (Room 3126) April 13, 1945

Mary V. Robinson

Re material for "Community Planning Day" - Louisville, Ky. - April 27 - as requested in Mr. Brooks' memorandum of April 7

We shall of course be glad to supply this additional material for this purpose, and it will be sent to Mr. Brooks direct within the next day or two. It does not need to be returned.

I am glad that Mr. Brooks did not have any of the desired material in his office, because all of it with the exception of the set of six colored posters stressing safety problems is somewhat out of date.

Sent 4/14/45 mail

With reference to Mr. Brooks' request for WOMEN IN WAR PRODUCTION, this set of five posters has been replaced by a set of five showing 46 photographs of women engaged in various operations in key war industries -- representative of their more extensive utilization on war jobs. The new set of five was planned and printed when the former supply became exhausted, and we are glad to supply Mr. Brooks with these posters as well as several others related to women's wartime employment that will doubtless be of interest.

Sent 4/16/45 mail

The set of three wall maps showing maximum hour and minimum wage laws for women in various States has been brought up to date, and a set of these corrected charts will also be mailed.

The history of State minimum wage legislation, showing status of legislation beginning with 1913; should not be used without being brought up to date. As we have not been using this chart, it does not present an exact picture of current conditions; however, we will attempt to have it corrected in time for Mr. Brooks' needs.

Sent 4/14/45 -mail.

We are forwarding the set of six popular colored posters stressing safety problems. Although made up sometime ago, the information has remained timely.

Have you received any word from Mr. Brooks as to whether or not he wants the photograph albums? Because the one regarding women in war industries would have to be compiled, we should have definite word very soon. 4/13/45 Evans said "go"

albums sent 4/20/45

M. V. Robinson

Mr. Charles G. H. Evans
Asst. Director of Information

April 7, 1945

Raymond S. Brooks, Field Assistant

RSB:se

Women's Bureau Charts

A series of large charts, maps, etc., prepared by the Women's Bureau, which has been in custody of this office for some time, is currently being held at the YWCA at Memphis, Tennessee, for use in the "YWCA Little Convention," starting April 21. I would like to use charts of this kind at "Community Planning Day" in Louisville, Kentucky, April 27, and this would be particularly desirable in view of the fact that the new exhibits being prepared will not be ready by that date.

Can I receive another set of these materials for the Louisville observance? They would be used as a "Women in Industry" exhibit. In view of the fact that another set of these materials is in this region, I can return this second set after its use in Louisville, if requested. This material should reach me at this office not later than April 25.

Sent to Louisville - approved by me Evans

Exhibit materials particularly suitable would be:

10 War Posters Sent 4/16/45 mvd.

(1) Women in War Production--a set of five posters displaying forty-five photographs of women workers in key war industries.

Annual maps Sent 4/16/45 mvd.

(2) A set of three maps in colors showing maximum hour and minimum wage laws for women in various states. Size for wall display.

(3) History of State minimum wage legislation--showing status of legislation from 1913 to date in form of bar chart.

Sent 4/16/45 mvd.

(4) Safety for Women Workers--set of six popular colored posters stressing safety problems. 32 by 46 inches.

Mr. Raymond S. Brooks
Nashville

April 7, 1945

Mary V. Robinson (Women's Bureau)
Referring to your memorandum to Mr. Evans regarding publications and an exhibit for Community Planning Day, Louisville, Ky., April 27.

Mr. Evans has discussed the above matter with me, and we have sent him a memorandum concerning our plans for cooperating with you. You probably have a copy of the memorandum before you now. However, in order to have the albums, which we have suggested, in the best form for your purpose, we should like to get the following information from you concerning women's employment in Louisville:

1. Are women employed on street cars and/or busses?

2. Are women employed at the airports or in the railroad stations in any capacities?

3. Are there any Army and Naval installations in or near Louisville which employ women? If so, would you give the nature of the installations, whether air depots, army supply depots, etc.?

4. Do women in the garment factories work on uniforms or other clothing for the armed forces?

5. Have you any idea where Negro women are employed? Are they employed in industrial peace-time jobs, war jobs, or both?

Of course we do not want you to do any extensive research. Probably the local employment offices could answer the questions rather easily. However, if you do not want these albums, do not hesitate to say so.

The reason for the war album as stated in a brief prologue to the photographs, would be to show how the war adjustments of women workers point to the need of corresponding postwar adjustments.

Mr. Evans (Room 3126) April 7, 1945

Mary V. Robinson

Mr. Brooks' request for publications and exhibit material for Community Planning Day program in Louisville, Ky., April 27.

As a follow-up to our conversation on the above subject, we will send the following specified publications in the numbers requested in Mr. Brooks' memorandum of March 30:

200 copies - leaflet - Work For Women After the War
25 " Bulletin 203-2 -- Occupational Therapists
50 " Special Bulletin 18 -- Preview As To Women Workers in Transition From War to Peace
100 " Bulletin No. 201 -- Employment Opportunities in Characteristic Industrial Occupations for Women

In response to Mr. Brooks' memo of April 3, we are forwarding 150 copies of "Retool Your Thinking." Also included in the package will be 25 copies of Bul. 203-1, "Physical Therapists," which we believe he would want even though not mentioned in his request.

I judge you have contacted the Children's Bureau for publications answering the following questions which he states are listed for discussion on the program:

a. What will happen to families if mothers continue to work?
b. What about babies and children left alone or in the streets while their mothers work?

In regard to our suggestion that we could offer two albums for exhibit purposes, we wish to point out that they are in easel form, 18" x 12½" and therefore will take up very little space. One, to be prepared from photographs of women in various kinds of jobs during the war period (both war and essential civilian industries), would contain approximately 50 photographs of women engaged in occupations characteristic of Louisville. As I reported to you, I am writing to Mr. Brooks for suggestions on certain types of women's employment in Louisville, if the album exhibit seems desirable to him.

The second album, already prepared except for a few additions, presents postwar problems and prospects for women workers.

We note that Mr. Brooks wants this material by April 25, and I assure you it will leave our office in sufficient time to reach him by that date. It will be addressed to him c/o Wage and Hour and Public Contracts, 610 Republic Building, Louisville, Ky.

files



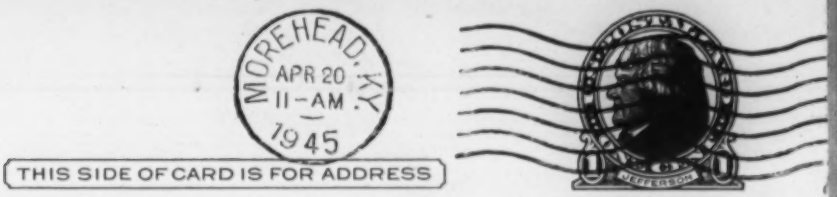
MSIC Box 126
Morehead, Ky.
April 19, 1945.

Madam.

Would you please send me a list of occupational leaflets for loan to schools?
Thank you!

Yours Truly,
Mary Ellen Lyon (Teacher)

W.B. Posters sent



Women's Bureau, Dept of Labor
Washington, D. C.

COPY

Mr. Charles G. H. Evans
Asst. Director of Information

April 3, 1945

Raymond S. Brooks, Field Assistant

RSB:se

Request for Materials
(Women's Bureau)

We will appreciate it if you will forward 150 copies of Leaflet A-1945, "Retool Your Thinking." These will be distributed if they can be received in time at the Community Planning Day program in Louisville, Kentucky, on April 27, and also to a special list we have compiled of persons requesting this type of material.

COPY

Mr. Charles G. H. Evans, Assistant Director
Division of Information

March 30, 1945

Raymond S. Brooks,
Nashville

Exhibits--
Your memo of March 23

"Community Planning Day" will be observed in Louisville on April 27 under sponsorship of the Council of Social Agencies and about 150 business, civic and community organizations. We have been invited to provide exhibits and informational material on 1. Women in Industry; 2. child labor.

I would appreciate your advising whether the new exhibits referred to in your memo of March 23 will be ready for use on this occasion. Would it be possible, without inconveniencing anybody, to expedite the exhibits on the above two topics so they can be ready. They should arrive in Louisville, Ky. not later than April 25 to insure being used in this event.

This is the first such event to be held in Louisville and judging by the list of sponsors and early planning, it should prove a favorable opportunity to reach a good many people with this information. I am requesting a list of publication materials for this event in separate memo.

copy

Mr. Charles G. H. Evans, Assistant Director
Division of Information

March 30, 1945

Raymond S. Brooks, Field Assistant
Nashville

Request for Materials

For use and distribution at the Community Planning Day program at Louisville, Ky. on April 27, the following materials are desired. To be used, these materials should reach Louisville not later than April 25. The subjects on which we have been invited to bring exhibits and materials are 1. Women in Industry; and 2. Child Labor. As some of these materials may have to come from GPO and as it may not be likely that such materials would arrive in time, I would appreciate it if the respective bureaus would make substitutions covering the indicated subjects, where necessary, from materials now on hand and which can be obtained on time.

Women's Bureau: Work for Women After the War-- (blue folder) dated Sept. 1, 1944..... 200

Occupational Therapists-- Bulletin 203. No. 2..... 25

" Pamphlet 25

Employment Opportunities in Characteristic Industrial Occupations of Women" Bulletin 201..... 100

Preview as to Women Workers in Transition from War to Peace. Special Bulletin 18..... 50

Retool your Thinking — — — 150

Also publications answering the following questions which are among the subjects listed for discussion on the program:

a. What will happen to families if mothers continue to work?
b. What about babies and children left alone or in the streets while their mothers work?

Of each..... 100

Children's Bureau: (Not copied from memo because it does not pertain to the Women's Bureau)

NOTE-- All the above materials should be sent to me, c/o Wage and Hour and Public Contracts Division office, 610 Republic Building, Louisville, Kentucky

These pictures are representative of typical wartime occupations of women in industries characteristic of Louisville.

Chemical & allied products -- 70% — 4

Artillery Ammunition -- 57% — 5

Aircraft 45% — 7

Guns & Mounts 33 % — 5

Lumber & Lumber Products 31% — 5

Shipyards 7% — 2

Essential~~xfixiiixxx~~, Service/&Consumer Occupations 12

LOUISVILLE industry

✓	Ship & Boat Building & Repairing	6.6 %	female	employees
1 ✓	Chemicals & Allied Products	69.9 %	"	"
	Magnesium Alloy Semifinished Prod.	12.4 %	"	"
4 ✓	Guns & Mounts, 20 mm. and above	32.9 %	"	"
3 ✓	Airplanes, Gliders & Parts	45.3 %	"	"
	Valves, Faucets & Fittings	10.8 %	"	"
5 ✓	Lumber & Lumber Products	30.7 %	"	"
✓	Gen. Ind. Mach. & Equip, Nec	6.5 %	"	"
	Wiring Devices & Supplies	9.3 %	"	"
	Motor Vehicles & Parts	0.0 %	"	"
	Fabricated Structural Metal Prod.	4.9 %	"	"
2 ✓	Artillery Ammunition	56.8 %	"	"

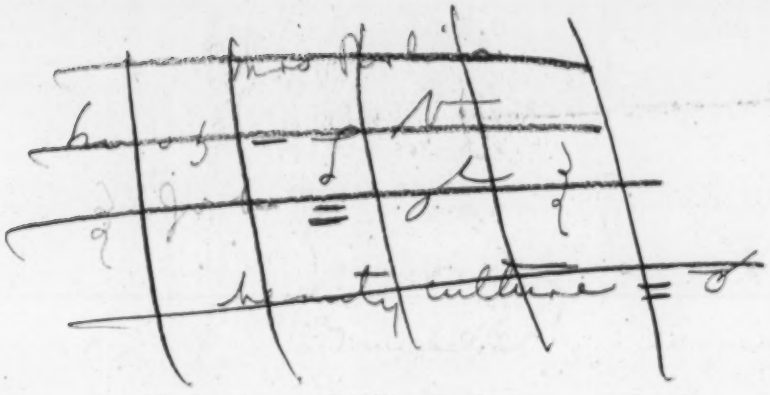
W. as tr. nurses
Elec. wkers
Sub. tech or chemists
Skraftsmen
Soc. & welfare workers
Farm work
Telephone
Laundry (negro)
Sales
Food (mfg)
Bakery
Dairy
Rest.
Canning

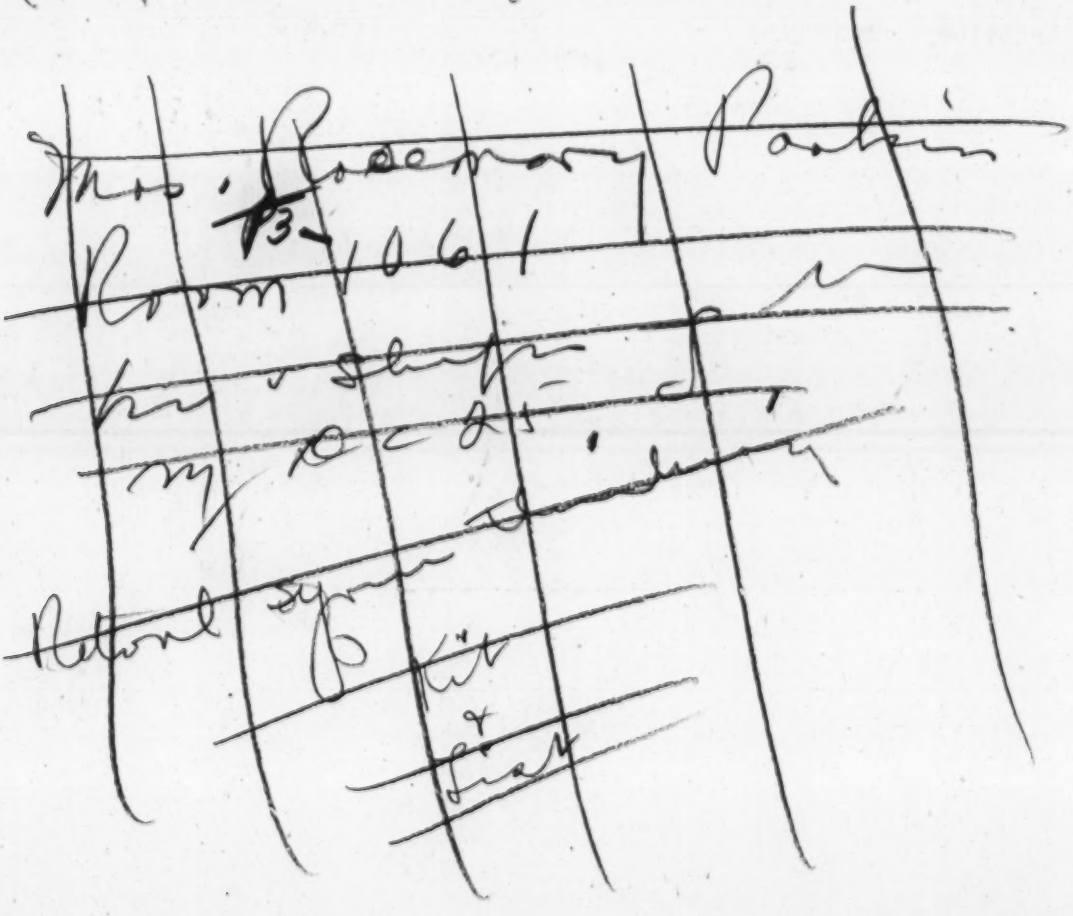
Mer

R. R.

Farm work
St Cars
Buses
Army
Navy
Installat
Ninfarmen

Textile
Paper (Pulp + paperboard mills, etc.)
Beauty shops in plant
Charwomen or cleaners
Elev. oper.
Cooks in hotel, Rest.
Waitresses





Files

War Manpower

April 6, 1945

Mrs. Edward S. Hopkins
Report and Analysis Section
Baltimore War Manpower Commission
Baltimore, Maryland

My dear Mrs. Hopkins:

Last Summer you assisted our field representative, Eloise Ewing, in developing the figures for the employment of women in the Baltimore Labor Market Area. Miss Ewing's report showed that the data were taken from your July report, as yet unpublished. As we would like to make reference in our report to this report, do you have a multilithed copy to send to us at this date?

I appreciated your assistance to Miss Ewing very much and was glad to know that you are an active part in the war picture.

Sincerely yours,

Bertha M. Nienburg,
Chief Economic Analyst

BMN:LW

War Manpower
4/16/45

WAR MANPOWER COMMISSION
[redacted]
[redacted]
UNITED STATES EMPLOYMENT SERVICE
610 Newhouse Building
Salt Lake City, Utah

[redacted]

OFFICE OF THE
STATE DIRECTOR

In Reply Refer
to File UT:RA

April 12, 1945

WOMEN'S BUREAU
APR 16 1945
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D.C.

Dear Miss Anderson:

Enclosed is the bi-monthly Demand-Supply Supplement for the month of March from the Ogden, Salt Lake, Tooele, and Provo areas in the State of Utah.

The information contained in these reports is restricted.

Very truly yours,

Joseph S. Mayer

Joseph S. Mayer
State Manpower Director - Utah

Enclosures

FOR VICTORY
BUY
UNITED STATES SAVINGS BONDS AND STAMPS

WAR MANPOWER COMMISSION

[redacted]

UNITED STATES EMPLOYMENT SERVICE

610 Newhouse Building
Salt Lake City 1, Utah

[redacted]

OFFICE OF THE
STATE DIRECTOR

In Reply Refer
to File UT:RA

February 13, 1945

To - General files - From - Research Division (Material filed in vault -) W Man Power

WOMEN'S BUREAU
FEB 17 1945
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Enclosed is the bi-monthly Demand-Supply Supplement for the month of January, 1945, from the Ogden, Salt Lake, Tooele, and Provo areas in the State of Utah.

The information contained in these reports is restricted.

Very truly yours,

Joseph S. Mayer

Joseph S. Mayer
State Manpower Director - Utah

Enclosures



War Manpower

Files

January 31, 1945.

Miss Pidgeon

Miss Miller

This is to confirm what I said about our check of the confidential War Manpower Analysis of reconversion data. Mr. Collis Stocking is now in charge of research. He told me that he is glad to make the data available for our study, but that the Commission itself regards many prognosis of reconversion conditions based on these data as outmoded due to the great shift in war production. With this warning and the understanding that the uses would have to be simply an interpretation of conditions then current, he suggests that Miss Hooks get in touch and he will make arrangements for her to work over there.

FM/IS/nb

War Manpower

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

WAR MANPOWER COMMISSION

AREA OFFICE

119 Ann Street
Hartford 4, Connecticut

January 23, 1945



Miss Frieda S. Miller, Director
Women's Bureau
U. S. Department of Labor
Washington 25, D. C.

Dear Frieda:

You are good to send me the interesting material you are putting out. I can assure you I put it to good use as I occasionally give a lecture to some group or other not too far from Hartford. Last Saturday I spoke at the Connecticut State
erican Association of University
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for advancement" by not drafting
of Pearl Harbor. English and
going to be so far ahead of us
on't be funny.

hes, always.

y yours,

B. Gilson

Gilson,
ion Consultant

1 Upgraded

2 Files

you must meet a lot of women,
to be on machines or assembly.

up with the political shenanigans
in USES and WMC in Connecticut
coming to you sometime and begging
for a war time job!

War Manpower

WAR MANPOWER COMMISSION

AREA OFFICE

119 Ann Street
Hartford 4, Connecticut

January 23, 1945

WOMEN'S BUREAU
JAN 25 1945
DEPARTMENT OF LABOR

Miss Frieda S. Miller, Director
Women's Bureau
U. S. Department of Labor
Washington 25, D. C.

Dear Frieda:

You are good to send me the interesting material you are putting out. I can assure you I put it to good use as I occasionally give a lecture to some group or other not too far from Hartford. Last Saturday I spoke at the Connecticut State meeting of the American Association of University Women. I still think civilization in general has missed a "chance for advancement" by not drafting women at the time of Pearl Harbor. English and Russian women are going to be so far ahead of us softies that it won't be funny.

Best wishes, always.

Cordially yours,

Mary B. Gilson

Mary B. Gilson,
Utilization Consultant

MBG:nzm

P.S. I'm sure you must meet a lot of women, as I do, who ought to be on machines or assembly lines. I am so fed up with the political shenanigans in manning posts in USES and WMC in Connecticut that I may be running to you some time and begging for a war time job!

January 5, 1945

Miss Mary Gilson
Hanover Lodge
722 Asylum Avenue
Hartford, Connecticut

Dear Mary,

I had held off answering your note, which came as a postscript on a letter to you from Chase Going Woodhouse, until the material that came out of our early December conference was ready to send out, as it was just before Christmas. Then, I regret to say, the holidays intervened but I hope that it is not now too late to be useful to you.

It was a very good conference, in that I think the people who came had been thinking about the same kinds of problems that we had and we got a very pointed discussion. Of course we are planning to follow up with more materials and with work on some of the program points that seem to us more especially in the area of our responsibility.

I do hope you have had a little rest over the holidays and that things are going better with you.

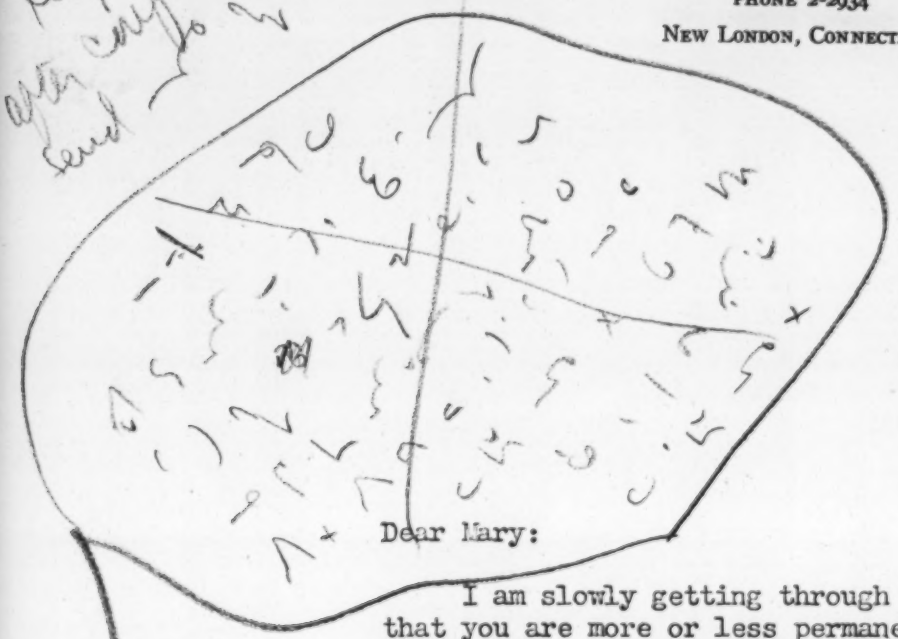
With cordial good wishes,

Sincerely yours,

Frieda S. Miller, Director

FM:IS

751 WILLIAMS STREET
PHONE 2-2934
NEW LONDON, CONNECTICUT



November 16, 1944

Dear Mary:

I am slowly getting through my very stupid head that you are more or less permanently established in Hartford. I keep thinking of you so definitely as in Boston or Providence.

I am going to count on you very definitely to keep on sending me data on things that should be done to keep women in jobs. Frieda Miller is, I am glad to say, tackling the problem definitely and vigorously. She has called a meeting in Washington for early December. Something definite will I am sure come out of it.

With best wishes

Sincerely

CGW:MR

Chase Going Woodhouse

Miss Mary Gilson
Hanover Lodge
722 Asylum Avenue
Hartford, Connecticut

Nov. 18

May I have a report of this, Frieda? I am in factories day and night and never have a chance to discuss anything with anyone but factory managers and labor men and workers.

I'm so fed up with women, but maybe it's because I'm tired. Are they ever going to stand on their own feet? Are they ever going to be interested in the long hours many, many men are working? Mary Gilson

File
War Manpower

January 13, 1945

Mr. Collis Stocking
Chief of Reports and Analyzes Service
War Manpower Commission
Washington 25, D.C.

Dear Mr. Stocking:

I wish to receive regularly the monthly summaries of the ES 270's to use in connection with the work of the Women's Bureau Research Division on women's employment trends. We are familiar with the material and restrictions as to its use and will handle it accordingly.

Sincerely yours,

Mary Elizabeth Pidgeon,
Director of Research

JMH/ml

U.S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

Respectfully referred to

War Manpower Commission
1778 Pennsylvania Avenue, N.W.
Washington 25, D.C.

request of:

Miss Jeannette Soule
Sharon, Massachusetts

Frieda S. Miller, Director

The writer has been informed
of this reference.

WMC - TRAINING MATERIALS

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

To—		From—	Re Attached Please—
	Anderson.	✓	Approve
✓	Nienburg.	✓	Comment
	Larrabee.		Note
	Benham.		Note and return
	Dern.		Reply
	Erickson.		Draft of reply
	Hyde.		Signature
	~~Manning~~ Field.	✓	Would like to discuss
	Mettert.		File
	Pidgeon.	✓	
	Robinson.	✓	Date
	Smith, F.		Note:
	Spring.	✓	
	Stitt.		
	Files.		

OPO 16—24460

6 copies asked for - +
sent + — Time needed in 1st
and column above.

War Manpower Com-Dev

War Production Occupations For Vocational Training

A list of occupations issued by the War Manpower Commission for which vocational training for war production workers may be given when need for training is established





REVISED

1942

War Production Occupations For Vocational Training

A list of occupations issued by the War Manpower Commission for which vocational training for war production workers may be given when need for training is established

REVISED
1942

FEDERAL SECURITY AGENCY

U. S. Office of Education
Vocational Division
Vocational Training for War Production Workers

Social Security Board
Bureau of Employment Security
U. S. Employment Service

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FOREWORD

This report is a revision of the LIST OF OCCUPATIONS, Approved by the Office of Production Management for Vocational Training Courses for Defense Workers, which was issued in the Spring of 1941. Since that time rapid technical developments in a number of major war industries have necessitated a complete revision of this first edition, in order to eliminate any occupations not definitely adapted for organized vocational training, or for which vocational training is no longer needed, and to list new occupations which have since come into prominence.

This revised edition contains 633 occupations which were selected for vocational instruction. It was prepared by the Occupational Analysis Section of the United States Employment Service, Bureau of Employment Security, Social Security Board, in cooperation with the Division of Vocational Training for War Production Workers, United States Office of Education. The data contained herein are designed to assist training authorities and local offices of the United States Employment Service in jointly planning job instruction for the occupations specified.

The data that were used in compiling the study have covered a wide range of material. In the main, they have been based on the following sources:

1. Occupational Composition Studies.—Prepared by the Occupational Analysis Section of the United States Employment Service. These are studies showing the occupations that occur in specified industrial processes, together with the percentage of workers employed in each occupation, and information concerning the type of vocational training most suitable for the occupations listed. They are designed to assist the local offices of the United States Employment Service in connection with staffing problems for new industries. They are only available to these offices, through proper channels, if the need for them can be established.

2. Job Analysis Schedules by the Occupational Analysis Section of the United States Employment Service. These are detailed analyses prepared from actual observation of the worker at work. They cover the tasks performed by the worker, the materials and equipment used, the qualifications necessary for satisfactory job performance, relation of the subject job to other jobs, length and content of training necessary for the worker to become proficient, and similar data. The Occupational Analysis Section has made about 70,000 such analyses. They are the source data from which the Dictionary of Occupational Titles and such job description studies as Job Descriptions for Job Machine Shops and Job Descriptions for the Retail Trade were prepared. These may be seen in any of the local employment offices of the U.S. Employment Service and can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. A list of all published job description studies is available from the Occupational Analysis Section, U.S. Employment Service, Washington, D.C.

3. Reports of Employer Labor Needs. These are reports which are collected by the United States Employment Service to provide information on future labor requirements in important war industries, including information on training needs.

4. A number of private and governmental publications related to the subject.

5. Information obtained from representatives of the United States Office of Education, state and local vocational officials.

PURPOSE, ORGANIZATION AND USE OF THE MATERIAL INCLUDED IN THIS REPORT

The purpose of this list is to provide a guide in the establishment of pre-employment and supplementary vocational training for occupations in selected war industries. Occupations not suitable for such instruction have been omitted. Occupations thus excluded are those requiring training of professional grade, those for which training can be given only on the job, and those requiring such brief induction training that vocational instruction usually is not necessary. Many of the occupations included in the list normally require training much more extensive than can be given in short-unit courses. They are included because certain phases of related training, job orientation, or instruction in certain units of the occupation can be provided. Such occupations have been marked in Part II with an asterisk.

The inclusion of an occupation in this list does not mean per se that training should be given for that occupation in any or all communities. It merely means that such an occupation is important in the war program and with respect to preemployment training may be considered as an appropriate field if the conditions of demand and supply warrant establishment of such instruction. Pre-employment training in any case should be initiated only when the supply of workers in an occupation appears insufficient to meet the current and anticipated demands, and then only under conditions that will insure adequate safeguards of the interests of employers, workers, and trainees.

Each occupation in this report has been designated by the title and code appearing in the Dictionary of Occupational Titles.1/ In order to make these data as useful as possible they have been presented in four parts:

Part I lists all of the occupations in an alphabetical sequence with allocations to one or more of the 24 selected war industries in which they are most commonly found. The table is designed to serve as a control in planning training and to emphasize the importance that training must be geared to meet the needs of war production and not merely to make use of facilities that would train workers for the occupations listed. For example, with respect to the occupation of Sewing-Machine Operator, training should be given only in connection with the aircraft and aircraft parts manufacturing industries unless special authorization is granted through proper channels. Or, as another example, Cabinetmakers should be trained only to meet the needs of the aircraft and shipbuilding industries. No doubt, in planning vocational training courses locally, war industries other than those to which occupations have been allocated or those not appearing in this tabulation may need workers for the occupations specified. Likewise all occupations for which specific training for war industry is needed may not be listed. In those instances, specific requests for the consideration of such training should be submitted, through channels on the proper forms.

Part II is an alphabetical arrangement of the occupations, each title being accompanied by a concise nontechnical definition to indicate the exact type of work covered by the title. Inasmuch as these definitions give a fairly comprehensive picture of each job listed, it is hoped that this information will be of assistance in organizing the necessary training. As indicated in the Foreword, those occupations which normally require more training than can be given in short-unit instruction are marked with an asterisk.

Each job in this report has been identified only by the main title as listed in the Dictionary of Occupational Titles. This was done in order to achieve as much uniformity as possible in reporting occupations for which instruction is being planned. If it is found that training is being requested in an occupation under a title not found in this list, it is suggested that the Dictionary of Occupational Titles be consulted first as the title may be an alternate one and may refer to the main title appearing in this report.

Those not conversant with the terminology and code structure of the Dictionary of Occupational Titles will also find reading the introduction in

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1/ Dictionary of Occupational Titles: Prepared by the Occupational Analysis Section of the United States Employment Service, Washington, 1939. For sale by the Superintendent of Documents, Washington, D.C., Price, Part I, $2; Part II, $1.

this document profitable, especially if they desire to understand the terminology and code structure.

In a few instances job definitions have also been slightly modified by deleting information relating to non-war aspects of a particular job. Thus, for example, in the definition of Cabinetmaker, the reference to "high grade articles of furniture" has been omitted, and information has been substituted to indicate that the instruction must be directed toward articles applicable to war industries.

Part III is an alphabetical arrangement of the occupations under standard course titles as developed by the U.S. Office of Education. The codes are to be used by the vocational school officials in classifying all preemployment and supplementary instruction. Courses of instruction in any of the listed occupations should receive the code number and course title of one of these specific categories in which the occupation appears. For example, a course providing training for the occupation of Screw Machine Operator 4-78.021 should be classified in the category "Machine Shop Code 75." However, if the training is specifically in connection with aircraft manufacturing, it should be designated by the title and code of "Aircraft Machine Shop - Manufacturing Code 15." In addition, it is important that the specific occupational title for which training is given is shown in item 8 of VE-ED Form 2.

Part IV lists definitions of the Social Security Board Industrial Classifications to which the occupations have been allocated in Part I of this study, in order to give the reader a better idea of the scope of the selected industries.

PART I

OCCUPATIONS ARRANGED ALPHABETICALLY

WITH ALLOCATIONS

TO

SELECTED WAR INDUSTRIES

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PART I

OCCUPATIONS ARRANGED ALPHABETICALLY

WITH ALLOCATIONS

TO

SELECTED WAR INDUSTRIES

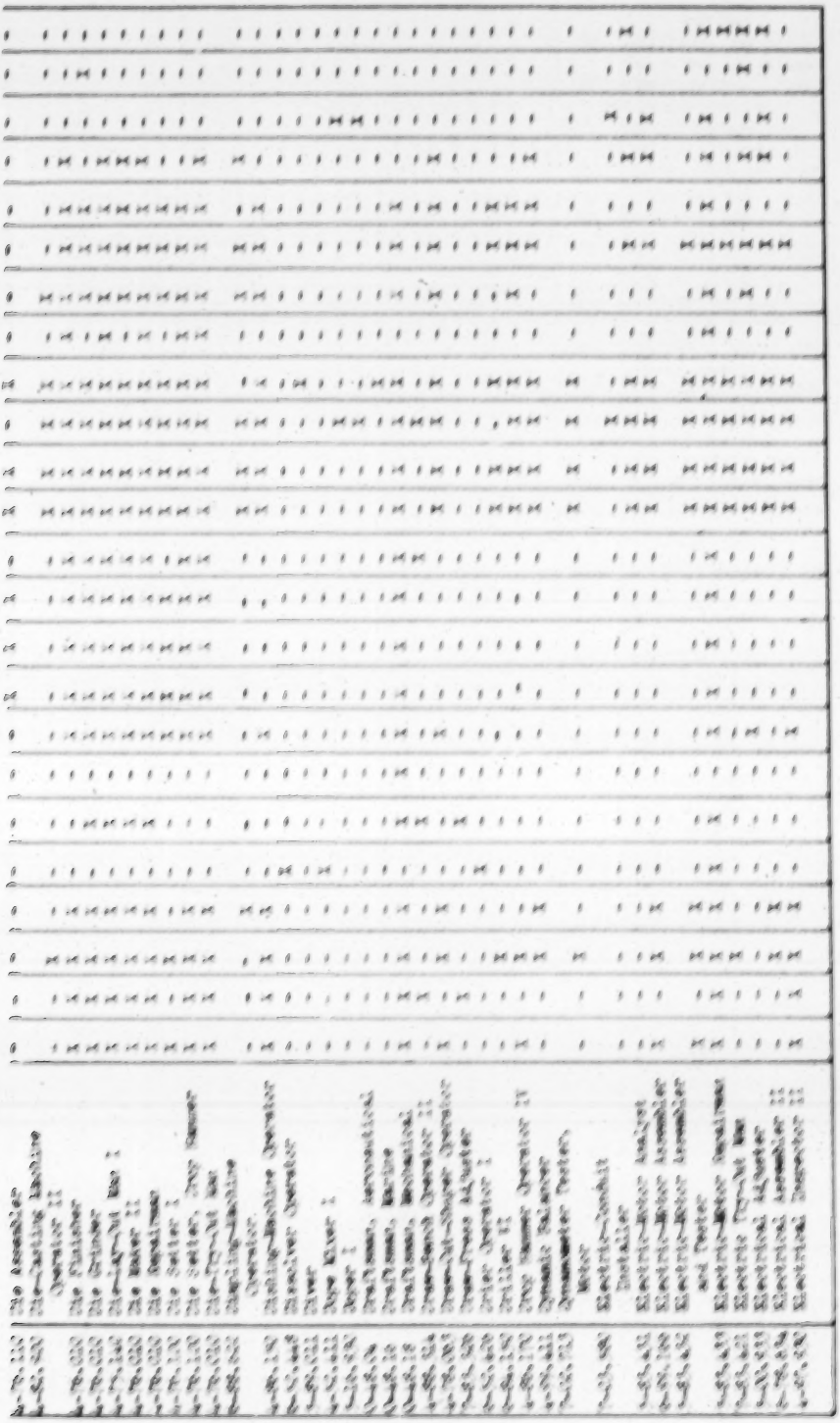
Code	Dictionary of Occupational Titles	6-52.721 Absorberman	6-85.225 Acetylene-Burner Operator	6-52.413 Acid Man VIII	5-83.545 Aircraft-Armament Mechanic	5-80.130 Aircraft-Engine Assembler	5-80.130 Aircraft-Engine-Cylinder Mechanic	5-80.130 Aircraft-Engine Dismantler	5-80.130 Aircraft-Engine Installer	5-80.130 Aircraft-Engine Mechanic	5-80.130 Aircraft-Engine Mechanic, Line Service	5-80.120 Aircraft Mechanic	5-03.010 Airplane Coverer	5-03.810 Airplane Inspector II	5-80.010 Airplane Mechanic	5-80.130 Airplane Mechanic, Line Service	5-80.130 Airplane Mechanic, Overhaul	5-80.500 Airplane Rigger	5-80.130 Airplane-Tank-And-Cowl Mechanic
1911	Guns, Howitzers, and Mortars		X																
1921	Ammunition, Except for Small Arms																		
1931	Tanks		X																
1941	Sighting and Fire-Control Equipment																		
2884	Explosives		X																
2892	Small-Arms Ammunition																		
2911	Petroleum Refining		X																
3312	Steel Works and Rolling Mills		X																
3321	Gray-Iron Castings		X																
3322	Malleable Iron Castings		X																
3323	Steel Castings		X																
3397	Firearms (Calibre .60 and Under)		X																
3411	Locomotives and Parts		X																
3412	Railroad, Street, and Rapid Transit Cars		X																
342	Aircraft and Parts	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X
343	Shipand Boatbuilding and Repairing		X																
353	Rolling, Drawing, and Alloying of Non-ferrous Metals		X																
3561	Aluminum and Magnesium Products																		
36	Electrical Machinery		X																
37	Machinery (Except Electrical)		X																
391	Professional and Scientific Instruments																		
4321	Air Transportation (Common Carrier)		X			X		X	X	X		X	X	X	X	X	X	X	X
46	Communication: Telephone and Telegraph																		
48	Utilities: Electric and Gas		X																

4-33.916	Airplane Woodworker I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
0-50.50	Ammunition Proof Technician	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6-88.621	Angle Puncher and Shearer	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	X	X	X	-	-	-	-	
6-87.110	Annealer I	X	X	X	X	-	X	-	X	-	-	X	X	X	X	X	X	X	X	X	X	X	-	-	-	
6-87.150	Annealing-Bath Operator	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6-88.611	Arbor-Press Operator	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
6-99.111	Armature Bander	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	-	-	X	X	X	
6-99.011	Armature Winder I	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	-	-	X	X	X	
6-99.011	Armature Winder II	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	-	-	X	X	X	
6-99.011	Armature Winder, Repair	-	-	-	-	-	-	X	-	-	-	-	-	X	X	-	X	-	-	X	-	-	X	X	X	
5-83.541	Armorer	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
7-00.211	Arming-Machine Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	-	
5-33.110	Asbestos Worker, General	-	-	-	-	-	-	X	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	
4-93.771	Assembler (firearms)	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4-84.012	Assembler (ship & boat)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
4-52.711	Autoclave Operator	-	X	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5-81.410	Automobile-Generator Repairman	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	
5-81.010	Automobile Mechanic	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5-81.610	Automobile Mechanic, Motor I	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5-81.530	Automobile-Radiator Man	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5-81.910	Automobile-Repair Serviceman	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5-81.920	Automobile Tester	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6-78.911	Babbitter I	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	X	-	-	
4-78.911	Babbitter II	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	X	-	-	
5-10.011	Bakelite Mixer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	-	-	-	-	-	
7-02.951	Balancer I	-	-	X	-	-	-	-	-	-	-	-	-	X	-	X	X	-	-	X	X	-	-	-	-	
5-80.600	Balloon-Envelope Repairman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
5-80.700	Balloon Rigger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
6-78.151	Barrel Centerer	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4-78.212	Barrel Chamberer	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4-78.213	Barrel Driller	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
6-88.732	Barrel Heater	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4-78.211	Barrel Reamer	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4-78.214	Barrel Rifler	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4-88.027	Barrel Roller II	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4-93.772	Barrel Straightener	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	

Dictionary of Occupational Titles		1811 Guns, Howitzers, and Mortars	1821 Ammunition, Except for Small Arms	1831 Tanks	1841 Sighting and Fire-Control Equipment	2884 Explosives	2892 Small-Arms Ammunition	2911 Petroleum Refining	3312 Steel Works and Rolling Mills	3321 Gray-Iron Castings	3322 Malleable Iron Castings	3323 Steel Castings	3397 Firearms (Calibre .60 and Under)	3411 Locomotives and Parts	3412 Railroad, Street, and Rapid Transit Cars	342 Aircraft and Parts	343 Ship and Boatbuilding and Repairing	353 Rolling, Drawing, and Alloying of Non-ferrous Metals	3561 Aluminum and Magnesium Products	36 Electrical Machinery	37 Machinery (Except Electrical)	391 Professional and Scientific Instruments	4321 Air Transportation (Common Carrier)	46 Communication: Telephone and Telegraph	48 Utilities: Electric and Gas
	Code	Title																							
	6-78.291	Barrel Threader																							
	4-78.011	Barrel Turner																							
	5-05.510	Batten Maker																							
	4-52.410	Beater Operator II																							
	5-03.554	Bench Assemblyman																							
	6-77.710	Bench Grinder																							
	4-80.010	Bench Hand II																							
	5-17.010	Bench Hand, Metal Patterns																							
	4-75.120	Bench Repairman I																							
	4-88.742	Bending-Roll Operator																							
	5-92.302	Bessemer-Converter Blower																							
	4-86.010	Blacksmith II																							
	4-86.010	Blacksmith Foreman																							
	6-52.712	Bleacher Operator I																							
	6-52.437	Blender II																							
	6-52.431	Block-Breaker Operator																							
	6-52.442	Block-Press Operator II																							
	6-93.777	Bluer II																							
	4-33.366	Boat-Oar Maker																							
	4-80.070	Boatbuilder, Steel																							
	5-25.610	Boatbuilder, Wood																							
	6-83.130	Boiler Tester																							
	4-83.100	Boilermaker I																							
	4-83.100	Boilermaker Foreman																							
	6-52.454	Boiling-Tub Operator II																							

6-52.465	Boiling-Tub Operator III	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-78.041	Boring-Machine Operator, Automatic	X	X	X	X	-	X	-	X	X	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-	
6-33.411	Boring-Machine Operator, Horizontal	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-	
6-33.411	Boring-Machine Operator, Vertical	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-	
4-78.041	Boring-Mill Operator	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	
5-81.110	Brake-Drum-Lathe Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
4-85.310	Brazer	X	-	X	X	-	-	-	X	-	-	-	X	X	X	X	X	-	-	X	X	-	-	-	-	
4-75.120	Broacher, Hand	X	X	X	X	-	-	-	X	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-	
6-78.051	Broaching-Machine Operator	X	X	X	X	-	-	-	X	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	X	
6-95.083	Bucker-Up IV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
7-83.326	Bullet-Assembly-Press Adjuster	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6-94.221	Bumper Operator I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-	
6-77.320	Burnisher, Hand	X	-	-	X	-	-	-	-	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-	
6-77.510	Burrer, Hand	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	
4-32.100	Cabinetmaker I	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	
5-53.950	Cable Splicer II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	X	-	-	-	X	X	
5-53.340	Cable Tester	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	
6-27.142	Canopy Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
6-27.965	Canopy Stringer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
4-27.811	Canvas Worker II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
7-02.711	Carburetor Inspector	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5-80.130	Carburetor Man I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-	
7-81.610	Carburetor Man II	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
5-79.020	Carman V	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	
5-25.640	Carpenter, Fairing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
5-25.640	Carpenter, Ship	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
4-87.210	Case Hardener	X	X	X	X	-	X	-	X	-	-	X	X	X	X	X	X	-	-	X	X	X	-	-	-	
6-78.511	Centerless-Grinder Operator	X	X	X	-	-	X	-	-	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-	
7-83.326	Centerless-Grinding-Machine Adjuster	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-52.721	Chamberman I	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-52.722	Chamberman II	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7-83.326	Charging-Machine Adjuster	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-78.675	Checker (aircraft mfg.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	

Code	Title	Dictionary of Occupational Titles	1811 Guns, Howitzers, and Mortars	1821 Ammunition, Except for Small Arms	1831 Tanks	1841 Blasting and Fire-Control Equipment	2864 Explosives	2892 Small-Arms Ammunition	2911 Petroleum Refining	3312 Steel Works and Rolling Mills	3321 Gray-Iron Castings	3322 Malleable Iron Castings	3328 Steel Castings	3587 Firearms (Gallery, Gun) and (Under)	3611 Locomotives and Parts	3612 Railroad, Street, and Rapid Transit Cars	3721 Aircraft and Parts	3431 Shipyard Boatbuilding and Repairing	3629 Building, Repairing, and Altering of Explosive Plants	3661 Aluminum and Magnesium Products	36 Electrical Machinery	37 Machinery (Except Electrical)	391 Professional and Scientific Instruments	4321 Air Transportation (Common Carrier)	44 Communication: Telephone and Telegraph	46 Utilities: Electric and Gas
6.37.010	Checker (explosives)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.122	Coil Taper, Machine		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.130	Coiler I		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.134	Coke-Oven Supervisor		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.142	Cold-Press Operator		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.162	Connector Assembler		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.166	Connecting Man		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.202	Connecting-Rod Inspector II		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.210	Converter I		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.222	Cotton-Bagger Operator		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.226	Cotton-Bridger Operator		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.234	Cowling Installation Assembler		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.242	Crankshaft Finisher		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.246	Crystallizer Operator II		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.250	Cupola Repairman		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.254	Cutter, Saw II		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.258	Cutter, Machine I		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.262	Cylindrical-Grinder Operator I		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.266	Cylindrical-Grinder Operator II		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.270	Detail Assembler I		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.274	Detail Assembler II		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.37.278	Detail Electrical Assembler		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Dictionary of Occupational Titles		Electrical Repairman 4-97.420	Electrical Tester I 5-53.360	Electrical Tester II 4-98.010	Electrician 4-97.010	Electrician, Aircraft 5-83.447	Electrician, Aircraft Radio 4-97.910	Electrician, Airplane 5-81.420	Electrician, Automotive 4-97.910	Electrician, Field Service 4-97.440	Electrician, Machine Shop 4-97.510	Electrician, Power-House 5-83.445	Electrician, Radio I 4-97.210	Electrician, Ship 4-97.220	Electrician, Shop 4-97.230	Electrician, Yard 7-03.542	Ends Assembler 5-03.572	Engine-Installation Assembler 4-78.011	Engine-Lathe Operator I 6-78.011	Engine-Lathe Operator II 5-80.350	Engine Tester 1-35.01	Engineering Clerk 6-78.513	External-Grinder Operator I
Code	Title																						
1911	Guns, Howitzers, and Mortars	X	I	I	X					I	X							X	X	X			X
1921	Ammunition, Except for Small Arms	X	I	I	X					I	X							X	X	X			X
1931	Tanks	X	I	I	X					I	X							X	X	X			X
1941	Sighting and Fire-Control Equipment	X	I	I	X					I	X							X	X	X			X
2884	Explosives	X	I	I	X					I	I							I	I	I			I
2892	Small-Arms Ammunition	X	I	I	X					I	I							X	X	X			X
2911	Petroleum Refining	X	I	I	X					I	I							I	I	I			I
3312	Steel Works and Rolling Mills	X	I	I	X					I	X							I	I	I			X
3321	Gray-Iron Castings	X	I	I	X					I	X							X	X	X			X
3322	Malleable Iron Castings	X	I	I	X					I	X							X	X	X			X
3323	Steel Castings	X	I	I	X					I	X							X	X	X			X
3397	Firearms (Calibre .60 and Under)	X	I	I	X					I	X							X	X	X			X
3411	Locomotives and Parts	X	I	I	X					I	X							I	X	X			X
3412	Railroad, Street, and Rapid Transit Cars	X	I	I	X					I	X							I	X	X			X
342	Aircraft and Parts	X	I	I	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X
343	Shipand Boatbuilding and Repairing	X	I	I	X					I	X							X	X	X			X
353	Rolling, Drawing, and Alloying of Non-ferrous Metals	X	I	I	I					I	I							I	I	I			I
3561	Aluminum and Magnesium Products	X	I	I	X					I	X							X	X	X			X
36	Electrical Machinery	X	I	I	X					I	X							X	X	X			X
37	Machinery (Except Electrical)	X	I	I	X					I	X							X	X	X			X
391	Professional and Scientific Instruments	X	I	I	X					I	X							X	X	X			X
4321	Air Transportation (Common Carrier)	X	I	I	X					I	X							X	X	X			X
46	Communication: Telephone and Telegraph	X	I	I	X					I	X							X	X	X			X
48	Utilities: Electric and Gas	X	I	I	X					I	X							X	X	X			X

4-88.991	Extruder Operator II	X	X	-	-	-	X	-	-	-	-	-	X	-	-	X	X	-	X	-	-	-	-	-	-
6-99.901	Extrusion-Press Operator II	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	-	-	-	-	-
5-03.030	Fabric Worker I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
4-78.291	Filer, Machine	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X
5-03.572	Final Assembler I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-03.562	Final Assembler IV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-03.812	Final Assembly Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-93.771	Final Inspector III	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
6-93.772	Final Inspector IV	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
4-99.432	Final Tester II	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	-	-	-	-	X
7-70.040	Fireman, Stationary Boiler	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X
4-83.300	Fit-Up Man	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	-	-
5-03.554	Fitting Man	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-87.142	Flame-Annealing-Machine Adjuster	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-85.215	Flame-Cutter Operator	-	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	-	-	-	-	-	-	-
6-85.240	Flame-Cutting-Machine Operator	-	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	-	-	-	-	-	-	-
6-78.293	Flange-Facing-Machine Operator	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	X	-	-
4-88.743	Flange Turner II	-	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	-	-	-	-	-	-
6-94.224	Flanging-Machine Operator IV	X	-	X	X	-	-	-	X	-	-	-	X	X	X	X	X	-	X	-	-	X	-	-	-
6-88.742	Flanging-Press Operator	X	-	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	X
6-82.620	Flask Maker, Metal	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	-
6-78.632	Floor Assembler	X	X	X	X	-	-	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
5-95.030	Foreman (air trans.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
5-92.411	Foreman (aircraft mfg.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-92.578	Foreman (alum. prod.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
5-91.891	Foreman (ammunition)	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-92.601	Foreman (elec. equip.)	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	-	-	-	-	-
5-91.872	Foreman (explosives)	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-92.392	Foreman (firearms)	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
5-92.391	Foreman (forging)	X	X	X	-	-	-	-	-	-	-	-	X	X	X	X	X	-	X	X	X	-	-	-	-
5-92.311	Foreman (found.)	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	-
5-92.903	Foreman (inst. & app.)	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	X	-	X
5-92.301	Foreman (iron & steel)	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
5-95.320	Foreman (light, heat & power)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X

Dictionary of Occupational Titles		1911 Guns, Howitzers, and Mortars	1921 Ammunition, Except for Small Arms	1931 Tanks	1941 Sighting and Fire-Control Equipment	2884 Explosives	2892 Small-Arms Ammunition	2911 Petroleum Refining	3312 Steel Works and Rolling Mills	3321 Gray-Iron Castings	3322 Malleable Iron Castings	3323 Steel Castings	3397 Firearms (Calibre .60 and Under)	3411 Locomotives and Parts	3412 Railroad, Street, and Rapid Transit Cars	342 Aircraft and Parts	343 Ship and Boatbuilding and Repairing	353 Rolling, Drawing, and Alloying of Non-ferrous Metals	3561 Aluminum and Magnesium Products	36 Electrical Machinery	37 Machinery (Except Electrical)	391 Professional and Scientific Instruments	4321 Air Transportation (Common Carrier)	46 Communication: Telephone and Telegraph	48 Utilities: Electric and Gas
Code	Title																								
5-92.401	Foreman (loco. & car bldg. & repair)	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X			
5-92.768	Foreman (mach. shop)	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X			
5-92.732	Foreman (r. h. tool & access.)	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X			
5-95.020	Foreman (motor trans.)	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X			
5-92.591	Foreman (nonfer. metal alloys & prod.)																								
5-92.901	Foreman (optical goods)																								
5-91.901	Foreman (petrol. refin.)							X																	
5-92.904	Foreman (photo. apparat.)																								
5-92.621	Foreman (radio mfg.)																								
5-95.040	Foreman (r. r. trans.)																								
5-92.592	Foreman (sheet metal)			X					X																
5-92.422	Foreman (ship & boat bldg. & rep.)																X								
5-92.433	Foreman (tanks)			X																					
5-95.220	Foreman (tel. & tel.)																								
5-92.331	Foreman (wire)								X																
5-91.501	Foreman (woodworking)												X	X	X	X	X	X	X	X	X	X			
5-17.060	Form Builder I	X	X	X	X		X																		
6-94.215	Forming-Machine Operator IV																								
7-83.326	Forming-Press Adjuster																								
6-88.627	Forming-Press Operator I																								
4-88.627	Forming-Press Operator II																								
6-78.631	Frame Assembler III																								
5-85.540	Fuel-and-Oil-Units Assembler															X									

5-03.572	Fuel-System Installer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
4-91.571	Furnace Tender, Coke or Coal	X	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	-	X	-	-	-	-	-
4-91.571	Furnace Tender, Oil or Gas	X	-	X	X	-	-	-	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	-	-
4-87.412	Furnaceman XI	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-86.020	Furnaceman XII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-83.326	Gage-and-Weigh-Machine Adjuster	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-76.220	Gage Inspector	X	X	X	X	-	X	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	-
6-78.672	Gager I	X	X	X	X	-	X	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	-
6-52.371	Gas-Plant Operator III	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-
6-56.010	Gas-Producer Man	-	-	-	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
4-78.131	Gear-Generator Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
6-78.133	Gear-Generator Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	-	X	X	-	-	X	X	-	-	-	-	-
4-78.132	Gear-Hobber Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
6-78.134	Gear-Hobber Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
7-02.715	Gear Matcher	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
4-78.133	Gear-Milling-Machine Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
6-78.135	Gear-Milling-Machine Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
4-78.134	Gear-Shaper Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
6-78.136	Gear-Shaper Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
6-78.132	Gear-Tooth Grinder	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-
7-02.311	General Assembler I	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
6-78.163	Gisholt-Lathe Operator	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5-77.010	Glazier V	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-	-
6-52.445	Graining-Press Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-84.611	Grating Maker	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-	-
6-77.040	Grinder	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
6-52.751	Grinder Operator IV	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-78.211	Grooving-Machine Operator I	X	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	-	X	X	X	-	-	-	-	-
6-77.750	Guide Grinder	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	X	X	-	-	-	-	-	-	-
6-78.084	Gun-Barrel-Drill Operator	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-
5-83.542	Gunsmith	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
5-30.020	Hangerman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
4-87.220	Hardener II	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	-	X	X	-	-	-	-	-
4-87.910	Hardness Inspector	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	-	X	X	-	-	-	-	-

Dictionary of Occupational Titles		1911 Guns, Howitzers, and Mortars	1921 Ammunition, Except for Small Arms	1931 Tanks	1941 Sighting and Fire-Control Equipment	2864 Explosives	2892 Small-Arms Ammunition	2911 Petroleum Refining	3312 Steel Works and Rolling Mills	3321 Gray-Iron Castings	3322 Malleable Iron Castings	3323 Steel Castings	3397 Firearms (Calibre .60 and Under)	3411 Locomotives and Parts	3412 Railroad, Street, and Rapid Transit Cars	342 Aircraft and Parts	343 Ship and Boatbuilding and Repairing	353 Rolling, Drawing, and Alloying of Non-ferrous Metals	3561 Aluminum and Magnesium Products	36 Electrical Machinery	37 Machinery (Except Electrical)	391 Professional and Scientific Instruments	4321 Air Transportation (Common Carrier)	46 Communication: Telephone and Telegraph	48 Utilities: Electric and Gas
Code	Title																								
5-92.401	Foreman (loco. & car bldg. & repair)	X																							
5-92.768	Foreman (mach. shop)	X	X	X		X			X	X	X	X	X	X	X		X	X	X	X	X	X	X		
5-92.732	Foreman (- h. tool & access.)	X	X	X		X			X	X	X	X	X	X	X		X	X	X	X	X	X	X		
5-96.020	Foreman (motor trans.)			X																					
5-92.591	Foreman (nonfer. metal alloys & prod.)																	X							
5-92.901	Foreman (optical goods)																								
5-91.901	Foreman (petrol. refin.)							X																	
5-92.904	Foreman (photo. apparat.)																								
5-92.621	Foreman (radio mfg.)																								
5-95.040	Foreman (r. r. trans.)														X										
5-92.592	Foreman (sheet metal)			X					X						X					X					
5-92.422	Foreman (ship & boat bldg. & rep.)																X								
5-92.433	Foreman (tanks)		X																						
5-95.220	Foreman (tel. & tel.)																						X		
5-92.331	Foreman (wire)								X																
5-91.601	Foreman (woodworking)																								
5-17.060	Form Builder I	X		X																					
6-94.215	Forming-Machine Operator IV		X	X	X		X		X			X	X	X	X	X	X	X	X	X	X	X			
7-83.326	Forming-Press Adjuster		X				X																		
6-88.627	Forming-Press Operator I		X	X			X								X										
4-88.627	Forming-Press Operator II														X										
6-78.631	Frame Assembler III																				X				
5-83.540	Fuel-and-Oil-Units Assembler															X									

5-03.572	Fuel-System Installer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
4-91.571	Furnace Tender, Coke or Coal	X	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	-	X	-	-	-	-	
4-91.571	Furnace Tender, Oil or Gas	X	-	X	X	-	-	-	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	-	
4-87.412	Furnaceman XI	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-86.020	Furnaceman XII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
7-83.326	Gage-and-Weigh-Machine Adjuster	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-76.220	Gage Inspector	X	X	X	X	-	X	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	
6-78.672	Gager I	X	X	X	X	-	X	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	
6-52.371	Gas-Plant Operator III	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	
6-56.010	Gas-Producer Man	-	-	-	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	
4-78.131	Gear-Generator Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
6-78.133	Gear-Generator Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	-	X	X	-	-	X	X	-	-	-	-	
4-78.132	Gear-Hobber Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
6-78.134	Gear-Hobber Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
7-02.715	Gear Matcher	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
4-78.133	Gear-Milling-Machine Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
6-78.135	Gear-Milling-Machine Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
4-78.134	Gear-Shaper Operator I	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
6-78.136	Gear-Shaper Operator II	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
6-78.132	Gear-Tooth Grinder	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	
7-02.311	General Assembler I	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
6-78.163	Gisholt-Lathe Operator	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5-77.010	Glazier V	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-	
6-52.445	Graining-Press Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-84.611	Grating Maker	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-	
6-77.040	Grinder	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
6-52.751	Grinder Operator IV	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6-78.211	Grooving-Machine Operator I	X	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	-	X	X	X	-	-	-	-	
6-77.750	Guide Grinder	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	X	X	-	-	-	-	-	-	-	
6-78.084	Gun-Barrel-Drill Operator	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	
5-83.542	Gunsmith	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
5-30.020	Hangerman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
4-87.220	Hardener II	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	-	X	X	-	-	-	-	
4-87.910	Hardness Inspector	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	-	X	X	-	-	-	-	

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Code	Title																								
4-62.120	Harness Repairman	X																							
6-78.021	Head-Turn-Machine Operator			X																					
4-87.010	Heat Treater II	X		X																					
4-88.081	Heater III	X		X																					
5-03.562	Heating-and-Ventilating-Installation Assembler																								
4-78.411	Honing-Machine Operator			X												X									
6-73.412	Honing-Machine Operator, Semiautomatic			X												X									
4-78.042	Horizontal-Boring-and-Milling-Machine Operator	X		X												X									
4-95.051	Hot Bender III																								
5-72.050	Hot-Mill Engineer																								
5-05.511	Hull Inspector																								
5-03.540	Hydraulic-Control-Unit Assembler																								
5-80.450	Hydraulic-Field-Service Mechanic																								
5-03.540	Hydraulic-Strut Assembler																								
5-03.572	Hydraulic-System Checker																								
5-03.840	Hydraulic Tester II																								
4-88.632	Hydro-Press Operator																								
7-02.721	Hypoid-Testing-Machine Operator			X												X									

7-83.326	Inspecting-Machine Adjuster	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-54.038	Inspector (ammunition)	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-78.671	Inspector (mach. shop)	X	X	X	X	-	X	-	-	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-	-	-
4-82.910	Inspector, Chief I	X	X	X	-	-	-	-	-	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	-	-	-
5-03.562	Installation Mechanic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
5-83.973	Instrument Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	X	-	-	-	-	-
7-08.018	Instrument-Lens-Centerer-and Edger	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-
5-00.912	Instrument Maker I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	-	X	-	-	-	-	-
4-75.130	Instrument Maker II	X	-	X	X	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-	-	-
5-83.972	Instrument Man IV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-	-	-
5-03.554	Instrument-Panel Assembler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
5-83.971	Instrument Repairman	-	-	-	-	-	-	X	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-	X
4-78.512	Internal-Grinder Operator I	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
6-78.523	Internal-Grinder Operator II	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-		
6-78.121	Internal-Keyseating-Machine Operator	X	-	X	X	-	-	-	-	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-		
4-91.573	Iron Puddler	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-		
4-75.130	Jeweler II	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-		
4-78.043	Jig-Boring-Machine Operator	X	X	X	X	-	-	-	-	-	-	X	X	X	X	X	X	-	X	X	X	X	-	-	-		
4-75.160	Job Setter II	X	X	X	X	-	X	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-		
4-88.624	Joggle-Press Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-		
5-25.650	Joiner VI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-		
4-76.910	Keller-Machine Operator	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	X	X	X	X	-	-	-		
1-38.04	Key Floorman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-		
6-88.627	Kick-Press Operator II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-		
5-03.554	Landing-Gear Assembler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-		
6-78.413	Lapping-Machine Operator	X	X	X	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-		
6-78.164	Lathe Operator, Automatic I	X	X	X	X	-	-	-	-	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-		
4-78.011	Lathe Operator, Large	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	X	X	-	-	-	-		
4-80.022	Lay-Out Man	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-		
4-83.200	Lay-Out Man	-	-	X	-	-	-	X	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-		
4-75.140	Lay-Out Man	X	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-		
5-05.530	Lay-Out Man	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-		
4-33.912	Lay-Out Man	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-		

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Code	Title																								
5-05.530	Layer-Cut, Piping																								
4-95.031	Lead Burner																								
6-81.090	Lead Molder																								
6-82.160	Leather Worker II																								
5-08.045	Lens-Edge Grinder, Hand																								
7-08.032	Lens Inspector II																								
5-09.050	Lens Molder																								
5-53.420	Lineman IV																								
7-83.326	Loading-Machine Adjuster																								
5-17.010	Lofterman II																								
5-17.245	Lofterman III																								
6-82.741	Lye Treater																								
6-82.445	Macaroni-Press Operator																								
7-83.326	Machine Adjuster III																								
6-81.010	Machine Molder, Jarring																								
4-81.080	Machine Molder, Squeeze																								
5-83.311	Machine Set-Up Man IV																								
4-76.010	Machinist II																								
4-76.120	Machinist, Bench																								
4-76.010	Machinist, Maintenance																								
5-83.642	Machinist, Marine Gas-Engine																								
4-76.150	Machinist, Outside																								
4-78.674	Magnaflux Inspector																								
4-99.012	Magnet Winder																								
6-78.674	Magnetic Inspector																								
5-83.641	Maintenance Mechanic II																								
6-03.582	Major Assembler																								

5-03.572	Major Assembly Installer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
5-83.621	Master Mechanic, Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4-91.444	Melter IV	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-54.033	Mercury-Cracking Tester	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-77.530	Metal Finisher, Hand Filing	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	X	-	-	-
4-75.141	Metal-Propeller Lay-Out Man	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
6-94.218	Metal-Stamping Inspector	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-
4-84.030	Metal-Tank Worker	-	-	-	-	-	-	X	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-	-
4-78.031	Milling-Machine Operator II	X	X	X	-	-	X	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	-
4-33.914	Millman	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-
5-78.100	Millwright	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	-	X	X	X	X	-	-
4-52.472	Mixer Operator VIII	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-52.487	Mixer Operator IX	-	X	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-17.240	Mock-Up Assembler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
5-17.070	Model Maker II	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
5-17.030	Model Maker VI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-05.710	Mold Checker II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-10.014	Molder (fabric. plastic prod.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
4-81.010	Molder, Bench	X	-	X	-	-	-	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	-
4-81.020	Molder, Finish	X	-	X	-	-	-	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	-
4-81.030	Molder, Floor	X	-	X	-	-	-	-	-	X	X	X	-	X	X	X	X	-	X	X	X	X	-	-	-	-
6-91.722	Molder, Lead	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-81.040	Molder, Pattern	X	-	X	X	-	-	-	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	-	-
7-02.357	Motor Adjuster	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	X	X	X
5-81.620	Motor Analyst	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-	-
5-81.020	Motorcycle Repairman	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-09.030	Mounter IV	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-
5-78.081	Multiple-Spindle-Drill-Press Operator	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-	-
5-78.292	Multipurpose-Machine Operator	X	X	X	X	-	X	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	-	-	-	-
5-88.626	Nibbler Operator	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-52.415	Nitrator Operator I	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-52.481	Ordnanceman	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-85.240	Oxyacetylene-Cutting-Machine Operator	X	-	X	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	-	X	X	X	

Dictionary of Occupational Titles		1911 Guns, Howitzers, and Mortars	1921 Ammunition, Except for Small Arms	1931 Tanks	1941 Lighting and Fire-Control Equipment	2884 Explosives	2892 Small-Arms Ammunition	2911 Petroleum Refining	3312 Steel Works and Rolling Mills	3321 Gray-Iron Castings	3322 Malleable Iron Castings	3323 Steel Castings	3397 Firearms (Calibre .60 and Under)	3411 Locomotives and Parts	3412 Railroad, Street, and Rapid Transit Cars	342 Aircraft and Parts	343 Ship and boatbuilding and Repairing	353 Rolling, Drawing, and Alloying of Non-ferrous Metals	3561 Aluminum and Magnesium Products	36 Electrical Machinery	37 Machinery (Except Electrical)	391 Professional and Scientific Instruments	4321 Air Transportation (Common Carrier)	46 Communication: Telephone and Telegraph	48 Utilities: Electric and Gas
Code	Title																								
7-02.744	Paint-Spray Inspector	X	-	-	-	-	-	-	-	-	-	-	X	-	-	X	X	-	-	-	X	-	-	-	-
5-27.110	Painter, Boat, Finish	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
7-27.110	Painter, Boat, Rough	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	X	-	-	-
7-16.210	Painter, Insignia	-	-	X	X	-	-	X	X	X	X	X	-	X	X	X	-	-	-	X	X	X	-	-	-
7-16.210	Painter, Spray I	X	X	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-27.502	Parachute Baster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-27.502	Parachute-Cover Sewer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
7-49.021	Parachute Packer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
7-49.023	Parachute Repairman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-17.257	Pattern-and-Foundry Inspector I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-17.248	Patternmaker XI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-	-
5-17.010	Patternmaker, Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-	-
5-17.020	Patternmaker, Wood	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
6-54.020	Pellet-Press Operator	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-88.351	Piercing-Mill Operator	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
5-30.030	Pipe Assemblyman	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-	-
5-30.010	Pipe Fitter	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-	-
5-30.015	Pipe Fitter II	-	-	-	-	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
4-78.071	Planer Operator II	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4-33.461	Planer Operator IV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-53.020	Plant Wireman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-17.250	Plaster-Pattern Caster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-78.071	Plate-Edge-Planer Operator	-	-	X	-	-	-	-	X	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-
6-84.130	Plate Hanger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-	-
4-74.010	Plater I	X	-	-	-	-	-	-	X	-	-	-	X	X	X	X	X	X	X	X	X	X	-	-	-
5-77.040	Plexiglas Former	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-

5-30.210	Plumber I	-	-	-	-	-	-	X	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	-	X
5-30.260	Plumber II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
5-03.562	Plumber, Aircraft	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
6-77.060	Polisher II	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	-	-
6-52.433	Powder-Cutting Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-52.455	Powder-Stacking-Machine Operator	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-99.172	Power-Transformer Assembler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	X
5-08.071	Precision-Lens Grinder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
6-54.053	Primer Assembler	-	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-83.326	Primer-Inserting-Machine Adjuster	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-54.036	Primer Inspector	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-08.065	Prism Measurer	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
1-18.66	Production Clerk II	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X
4-78.111	Profiling-Machine Operator I	X	-	X	X	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-
6-78.111	Profiling-Machine Operator II	X	-	X	X	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-
6-78.112	Profiling-Machine Operator III	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
4-78.671	Propeller Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
5-03.562	Propeller-Installation Assembler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-80.130	Propeller Mechanic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
4-88.012	Pulpit Man II	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-
6-88.622	Punch-Press Operator I	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-
6-88.624	Punch-Press Operator, Automatic	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-
6-88.625	Punch-Press Operator, Hand	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-
6-52.456	Putteeing-Machine Operator	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-91.585	Pyrometer Man II	X	X	X	-	-	-	X	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
6-85.240	Radiagraph Operator	-	-	X	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-
6-94.222	Radial-Drill-and-Router-Table Loader	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-78.082	Radial-Drill Operator III	X	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	-	-	-	-	-	-	-
6-78.082	Radial-Drill-Press Operator	X	-	X	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	-	-	-	-

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Code	Title																								
6-94.226	Radial-Router Operator																								
4-98.040	Radio-Chassis Aliner																								
4-98.050	Radio-Equipment Assembler, Special			X																					
5-83.447	Radio Mechanic II			X																					
5-83.447	Radio Mechanic, Aircraft Installations																								
0-61.30	Radio Operator																								
5-83.411	Radio Repairman I			X																					
6-98.310	Radio-Transmitter Assembler					X																			
4-98.060	Receiver Tester																								
6-52.714	Rectifier Operator I					X																			
4-91.441	Reverberatory-Furnace Operator								X																
7-03.542	Rib Assembler																								
7-03.542	Rib-Frame Builder																								
7-03.010	Rib Stitcher																								
5-03.572	Ripper IX																								
4-85.060	Ring Welder																								
6-93.195	Rivet-Machine Operator			X																					
6-84.450	Rivet Tester			X																					
4-84.060	Riveter V																								
6-95.080	Riveter, Aircraft			X																					
6-95.074	Riveter, Angle																								
6-95.061	Riveter, Hand IV																								
6-84.620	Riveter, Hydraulic			X																					
6-84.640	Riveter, Pneumatic I			X																					

4-84.060	Riveter, Pneumatic II	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
6-95.082	Riveter, Pneumatic III	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
6-95.074	Riveting-Machine Operator IV	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	X	X	-	-
6-78.167	Riveting-Tool Grinder	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
4-88.028	Roller, Bar Mill	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
6-94.658	Roller-Bearing Inspector	X	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-
6-77.330	Roller Operator II	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
6-94.204	Rotary-Shear Operator II	-	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	-	-	-	-	-	-	-
6-78.515	Rotary-Surface-Grinder Operator	X	-	X	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-
4-99.162	Rotor Assembler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-
0-97.53	Routeman III	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
6-94.227	Router Operator III	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-94.235	Router Operator, Portable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-17.110	Sample-Body Builder	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-84.230	Saw Filer, Hand	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	X
7-84.240	Saw Filer, Machine	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	X
5-05.550	Scarfer III	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-
4-78.021	Screw-Machine Operator	X	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-
6-78.144	Screw-Machine Operator, Semiautomatic	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	-	-	X	X	X	-	-	-
4-75.160	Screw-Machine-Set-Up Man, Automatic	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	-	-	X	X	X	-	-	-
4-88.321	Seamless-Tube Inspector	X	-	-	-	-	X	-	X	X	X	X	X	-	-	-	-	-	X	-	-	-	-	-	-
4-88.313	Seamless-Tube Roller	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-
6-27.141	Seat-Pack Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
4-86.140	Sectional-Hydraulic-Press Operator	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	-
6-27.110	Sewer, Hand XIV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-27.111	Sewer, Hand XV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-03.010	Sewer, Hand XVI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-27.502	Sewing-Machine Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
4-78.061	Shaper Operator I	X	X	X	X	-	X	-	X	-	-	-	X	X	X	X	X	X	X	X	X	X	-	-	-
6-33.364	Shaper Operator II	X	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	-	-	-	-	-	-
4-78.062	Shaper Operator, Portable	X	X	-	-	-	-	-	X	-	-	-	X	X	X	X	X	-	X	-	X	-	-	-	-
6-94.202	Sheet-Metal-Fabricating-Machine Operator	X	X	X	X	-	X	-	-	-	-	-	-	X	X	X	X	-	X	X	X	X	-	-	-
4-80.050	Sheet-Metal Former	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
5-03.820	Sheet-Metal Inspector I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-

Dictionary of Occupational Titles		1911 Guns, Howitzers, and Mortars	1921 Ammunition, Except for Small Arms	1931 Tanks	1941 Sighting and Fire-Control Equipment	2864 Explosives	2892 Small-Arms Ammunition	2911 Petroleum Refining	3312 Steel Works and Rolling Mills	3321 Gray-Iron Castings	3322 Malleable Iron Castings	3323 Steel Castings	3397 Firearms (Calibre .60 and Under)	3411 Locomotives and Parts	3412 Railroad, Street, and Rapid Transit Cars	342 Aircraft and Parts	343 Ship and Boatbuilding and Repairing	353 Rolling, Drawing, and Alloying of Non-ferrous Metals	3561 Aluminum and Magnesium Products	36 Electrical Machinery	37 Machinery (Except Electrical)	391 Professional and Scientific Instruments	4321 Air Transportation (Common Carrier)	46 Communication: Telephone and Telegraph	48 Utilities: Electric and Gas
Code	Title																								
6-78.676	Sheet-Metal Inspector II																								
4-88.622	Sheet-Metal Installer																								
4-80.020	Sheet-Metal Lay-Out Man I	X		X												X									
6-94.222	Sheet-Metal Lay-Out Man II																								
4-80.010	Sheet-Metal Worker II	X		X												X									
4-88.622	Sheet-Metal Worker III																								
4-80.050	Sheet-Metal Worker, Aircraft I															X									
4-80.060	Sheet-Metal Worker, Aircraft II															X									
4-80.010	Sheet-Metal Worker Foreman	X		X												X									
5-92.301	Sheet Roller I																								
4-88.025	Sheet Roller II																								
0-50.37	Sheet Tester																								
6-54.091	Shell Assembler																								
7-03.552	Shell Fitter																								
6-78.673	Shell Inspector																								
5-05.570	Ship Rigger																								
5-05.570	Ship-Rigger Foreman																								
4-84.012	Shipfitter																								
6-93.773	Sighter																								
6-78.083	Single-Spindle-Drill-Press Operator																								
5-03.554	Skeleton Assembler I																								
7-03.542	Skeleton Assembler II																								

5-03.552	Skin Man	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
6-94.205	Slitting-Machine Operator II	X	X	-	-	-	X	-	X	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-
7-03.552	Small-Parts Assembler III	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-03.554	Small-Parts Assembler IV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-02.015	Solderer, Torch I	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	-	-	X	X	X	X	X	X
6-52.446	Solvent-Recovery Man	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-03.550	Soundproofing Cutter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-03.562	Soundproofing-Installation Assembler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-03.552	Spar Builder I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
5-25.640	Sparmaker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
4-78.012	Speed-Lathe Operator	X	X	X	X	-	-	-	X	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-
4-94.201	Spinner IV	-	X	-	-	-	X	-	-	-	-	-	-	X	X	X	X	-	X	-	-	X	-	-	-
5-16.930	Spray Man II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	X	-	-
6-93.774	Star-Gage Operator	X	X	-	-	-	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
5-53.030	Station Installer II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-
5-72.010	Stationary Engineer	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5-30.410	Steam Fitter	-	-	-	-	-	-	X	X	X	X	X	-	X	X	-	X	-	-	-	-	-	-	-	X
5-83.641	Steam-Hammer Repairman	X	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	-	X	X	-	-	-	-
6-78.674	Steelscope Operator	X	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	-	-	-	-
4-52.731	Still Operator	-	-	-	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-55.030	Stillman II	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-55.010	Stillman, Gas Plant	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1-38.04	Stock-Control Clerk	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5-05.620	Straightener V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
6-88.613	Straightener, Hand	X	-	X	-	-	-	-	X	-	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-
6-88.612	Straightening-Press Operator	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X	X	-	-	X	X	-	-	-	-
7-76.950	Structural-Steel Inspector II	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	X	-	-	-	-	-	-	-	-
4-84.620	Structural-Steel Lay-Out Man	-	-	X	-	-	-	-	X	X	X	X	-	X	X	-	X	-	-	-	-	-	-	-	-
4-84.010	Structural-Steel Worker	-	-	-	-	-	-	-	X	X	X	X	-	X	X	-	X	-	-	-	-	-	-	-	X
7-02.321	Subassembler I	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-03.552	Subassembler II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-03.554	Subassembler III	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-03.562	Subassembly Installer I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
7-03.562	Subassembly Installer II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	X
5-51.210	Substation Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-52.441	Sulphator Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Code	Title																								
4-78.513	Surface-Grinder Operator I	X	X	X	X	-	X	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
6-78.522	Surface-Grinder Operator II	X	X	X	X	-	X	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
7-83.326	Swaging-Machine Adjuster	X	X	X	-	-	X	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
4-87.410	Switchboard Operator II	X	X	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	X	X	X	-	-	-	-
7-02.371	Switchpanel Man	-	X	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	X	X	X	-	-	-	-
7-03.552	Tail-Surface-Frame Builder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
7-03.552	Tank Builder II	-	X	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
7-03.542	Tank-Fittings Assembler	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
4-84.110	Tank Tester I	-	X	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
6-78.671	Tank Tester II	-	X	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
6-87.310	Temperer III	-	X	-	-	-	X	-	X	X	X	X	X	-	-	X	X	-	-	-	-	-	-	-	-
4-87.310	Temperer V	-	X	-	-	-	X	-	X	X	X	X	-	-	-	X	X	-	-	-	-	-	-	-	-
6-94.230	Template Filer	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
4-80.025	Template Inspector	-	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
4-80.020	Template Lay-Out Man	-	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
5-17.220	Template Maker III	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
5-17.255	Template Maker IV	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
4-84.630	Template Maker, Structural Steel	-	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
5-17.260	Template Maker, Wire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
6-78.671	Tester I	-	X	X	-	-	X	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
6-78.671	Tester II	-	X	X	-	-	X	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
4-93.773	Testing-Machine Operator II	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-

6-98.290	Testing-Machine Operator IV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	X	-
6-52.480	Tetryl-Blender Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-52.467	Tetryl-Dissolver Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-52.446	Tetryl-Nitrator Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-52.482	Tetryl-Screen Operator	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-78.516	Thread Grinder	X	-	X	-	-	-	-	-	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-
4-91.572	Tilting-Furnace Operator	X	-	X	-	-	-	-	X	X	X	X	-	X	X	X	X	-	X	X	X	-	-	-	-
4-80.010	Tinsmith	-	-	-	-	-	-	-	X	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
1-38.05	Tool Clerk	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
0-48.41	Tool Designer	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
5-84.010	Tool Dresser I	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7-84.010	Tool Dresser II	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
7-84.110	Tool Grinder II	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5-84.110	Tool-Grinder Operator	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4-87.230	Tool Hardener	-	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-
4-76.220	Tool Inspector	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-
4-76.210	Tool Maker	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
7-02.724	Torsion Tester	-	-	X	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
0-48.31	Tracer IV	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X
7-02.725	Transmission Tester	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0-61.80	Transmitter Tester	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	X	X	-
7-89.426	Tread Cutter, Hand	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-89.427	Tread Cutter, Machine	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-83.326	Trim-Machine Adjuster	-	X	-	-	-	X	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	X	-	-
5-83.413	Trouble Shooter VI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
5-81.030	Truck Mechanic	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-88.342	Tube Bender I	-	-	-	-	-	-	X	X	-	-	-	-	X	X	X	X	X	X	X	X	-	-	-	-
4-88.342	Tube Bender II	-	-	-	-	-	-	X	X	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-
6-95.053	Tube-Bending-Machine Operator I	X	-	X	-	-	-	-	X	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-
4-88.312	Tubing-Machine Operator I	-	-	X	-	-	-	-	X	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-
4-78.021	Turret-Lathe Operator	X	X	X	X	-	X	-	-	-	-	-	X	X	X	X	X	-	X	X	X	X	-	-	-
6-78.021	Turret-Lathe Operator, Automatic	X	X	X	-	-	X	-	-	-	-	-	X	X	X	X	X	-	-	X	X	X	-	-	-
4-85.080	Unionmelt Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
4-78.511	Universal-Grinder Operator	X	X	X	-	-	X	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-	-
6-98.250	Universal-Winding-Machine Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	X

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Code	Title																								
4-33.311	Universal-Woodworking-Machine Operator	-	-	-	-	-	-	X	X	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
4-35.720	Upholsterer II	-	-	-	-	-	-	X	X	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
6-52.471	Vacuum-Pan Operator III	-	-	X	-	-	-	X	X	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
6-33.224	Variety-Saw Operator	X	-	-	-	-	-	X	X	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
5-27.140	Varnisher VIII	-	-	-	-	-	-	X	X	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-
4-78.022	Vertical-Turret-Lathe Operator	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
4-85.030	Welder, Acetylene	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
4-85.020	Welder, Arc	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
4-85.060	Welder, Atomic	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
6-85.020	Welder, Butt	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
4-88.341	Welder, Butt, Tube	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
6-85.030	Welder, Flash	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
4-85.010	Welder Leadman	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
6-85.100	Welder, Roller Seam	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
6-85.060	Welder, Spot	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
6-85.080	Welder, Tack	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
6-85.070	Welder, Thermite	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
4-85.070	Welding Inspector	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
4-85.020	Welding Tester	-	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
6-78.166	Wheel-Lathe Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-81.210	Wheelwright II	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-03.554	Wing-Frame Builder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-80.100	Wing Man	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-53.320	Wire Chief I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-05.610	Wood Caker II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-33.918	Wood Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

4-33.918	Wood Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
5-05.512	Yard Inspector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
6-27.578	Zig-Zag Machine Operator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
6-27.578	Zig-Zagger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-

PART II

OCCUPATIONS ARRANGED ALPHABETICALLY

WITH JOB DEFINITIONS

A

ABSORBERMAN 6-52.711. Tends absorbers in which gases, admitted at the bottom, and liquids, admitted at the top, flow countercurrently in intimate contact with each other to effect an absorption of the gases in the liquids: regulates, by valves, the flow of liquids and gases to and from absorbers; observes recording thermometers and flow gages; samples product and checks with control laboratory for degree of absorption; regulates and makes minor repairs to equipment.

ACETYLENE-BURNER OPERATOR 6-85.215. Sets up and operates oxyacetylene-burning (cutting) equipment to perform metal-cutting operations; the object cut and the purpose of cutting varies in different establishments, such as burning sprues from castings in a foundry, cutting up scrap metal in a scrap-metal yard, or trimming girders or other structural shapes on a project: assembles cutting equipment by connecting torch to hose and hose to regulator on oxygen and acetylene tanks; screws proper tip into torch nozzle, lights torch, and regulates the flow of gases to obtain a suitable cutting flame by manipulating small valves on handle of torch; holds torch to metal and guides torch along the desired cutting line as the flame melts and cuts a narrow channel through the metal. May interpret blueprints or sketches and lay out (mark) cutting lines on the metal, using scales, dividers, and other instruments. May charge gas generator by renewing gas-generating chemicals and manipulating valves and other mechanism on tanks.

ACID MAN VIII 6-52.413. Prepares and mixes the acid solution used in nitrating cotton linters: operates mechanical pumps to separately transfer specified quantities of nitric, sulphuric and spent (previously used) acids from storage tanks into an enclosed weighing tank, determining the amounts by reading a scale connected to the tank; pumps each measured quantity into a mixing tank and starts agitators to mix solution for a specified period; takes samples of acids, before and after mixing, for laboratory tests. May prepare similar acid solutions to be used in manufacturing nitroglycerine.

*AIRCRAFT-ARMAMENT MECHANIC 5-83.545. Periodically inspects, services, and makes necessary repairs to armament equipment used on military aircraft: strips airplanes of all removable armament equipment, such as machine guns, synchronizers, and bomb and chemical apparatus, using ordinary and special hand tools; disassembles, inspects, cleans, oils and, when necessary, repairs dismantled equipment in the shop; inspects, lubricates and repairs non-removable armament, such as machine-gun mounts and bomb hoists; checks operation of electrical circuits controlling bomb-release and gun-firing mechanisms, following wiring diagrams; immerses parts of equipment not in use in hot cosmoline to protect them from rust and stores them until needed; cleans, reassembles, and remounts equipment.

*AIRCRAFT-ENGINE ASSEMBLER 5-80.130. An AIRCRAFT-ENGINE MECHANIC who inspects disassembled aircraft engines and reassembles tested parts, using all types of mechanic's tools and relying on an acquired knowledge of assembly procedures to insure the proper adjustment of all parts so that the engine will operate efficiently: examines engine parts to ascertain needed repairs, frequently tapping parts with a soft hammer and listening for dull sounds indicative of cracks, and using special detecting instruments when a visual examination with ordinary measuring devices is insufficient assurance of sound condition and safe operation; files, grinds, hammers, clamps, and tightens bolts of parts, such as the magneto, crankshaft, supercharger mechanism, and propeller gear assembly, referring to manufacturer's specifications for prescribed tolerances and checking assembles for conformity to specifications with feeler gages, micrometers, and special measuring devices; prepares record showing condition of each part.

*AIRCRAFT-ENGINE-CYLINDER MECHANIC 5-80.130. An AIRCRAFT-ENGINE MECHANIC who specializes in the overhaul of the cylinders of airplane engines: dismantles cylinders, removing spark plugs, valves, and other parts; hones cylinder bores to remove scars; refaces valves and valve seats in special grinding machines; replaces any defective parts, such as piston rings, rocker-arm bearings, or valve seats; uses special machinery and ordinary mechanic's tools and checks dimensions of work with precision gages; reassembles and paints overhauled cylinders ready for assembly into engines.

*AIRCRAFT-ENGINE DISMANTLER 5-80.130. An AIRCRAFT-ENGINE MECHANIC who disassembles aircraft engines to their component parts as the first step of a complete overhauling process, using various mechanic's hand tools: removes parts and

accessories in a predetermined sequence; cleans and stacks them on a rack, checking for obvious defects; installs overhauled engines on a test stand, makes a "break-in" run, and records instrument readings on a prescribed form.

*AIRCRAFT-ENGINE INSTALLER 5-80.130. An AIRCRAFT-ENGINE MECHANIC who disconnects and connects engines to the frameworks (mounts) to which they are bolted for testing and for installation in airplanes: disconnects tubing, wiring, controls, and accessories prior to overhaul; lifts engine from mount, using chain hoist; reconnects overhauled engines to special testing blocks and tested engines to mounts for re-installation in airplanes; services and maintains engine mounts, cleaning parts and replacing any that are defective.

*AIRCRAFT-ENGINE MECHANIC 5-80.130. Inspects, services, repairs, and overhauls airplane engines: examines external appearance of engines and listens to them in operation to detect sounds indicative of malfunctioning; replaces worn or damaged parts, such as cylinders and carburetors, while engines are still mounted in airplanes; removes engines from airplanes, disassembles them, and checks all parts for wear, warping, or other defects; repairs or replaces defective parts, and reassembles and reinstalls engines; performs miscellaneous duties to service engines, such as flushing crankcase, cleaning strainer screens, and greasing moving parts; uses mechanic's tools and equipment, such as wrenches, hoists, and gages. Must hold license from Civil Aeronautics Authority as Aircraft Engine Mechanic, or perform duties under supervision of licensed worker.

*AIRCRAFT-ENGINE MECHANIC, LINE SERVICE 5-80.130. An AIRCRAFT-ENGINE MECHANIC who checks, services, and replaces engines and engine parts in transport airplanes, performing any repairs short of overhaul required to keep airplanes in safe operation: Makes checks on engines of varying degrees of thoroughness depending on hours of service since last corresponding check; performs miscellaneous servicing tasks, such as replacing spark plugs and defective parts and cleaning strainer screens and engine mounts; replaces major engine parts, such as cylinders, by removing any other parts necessary to facilitate work, installing new part, and reassembling; removes engines for overhauling by disconnecting tubing, wiring, and accessories, unbolting engine and lifting it from plane with chain hoist; bolts engine to stand; installs new or overhauled engines in airplanes, reconnecting all parts and wiring.

*AIRCRAFT MECHANIC 5-80.120. Inspects, overhauls, and services airplanes except engines: repairs, replaces, and assembles such parts as wings, fuselage, tail assembly, landing or flotation gears, control cables, fuel and oil tanks, and lines; removes damaged parts and installs replacement from stock, or duplicates wooden and metal parts; performs necessary welding, metal fitting, covering, doping, rigging, and woodworking operations, using metalworking, woodworking, and welding equipment. Must hold license from Civil Aeronautics Authority as Aircraft Mechanic or perform duties under supervision of licensed worker.

AIRPLANE COVERER 5-03.010. Sews airplane fabric to airplane structure: stretches cloth over wing or fuselage structure, and sews it in place with a straight or curved needle so that thread passes around structural members; applies a single coat of dope (tautening lacquer) to the covering, and applies strips of pinked-edge fabric tape over the rows of stitches to protect and cover them, securing them by the cohesion of the dope on the tape and cover.

AIRPLANE INSPECTOR 5-03.810. Inspects aircraft fittings and assemblies for conformation with specifications: checks dimensions of fittings with gages, and compares with blueprint; passes, rejects, or returns for reworking the material inspected; performs hardness test on material received from the heat treating department by means of a hardness testing machine.

*AIRPLANE INSPECTOR II 5-80.910. Checks all parts and accessories of transport airplanes before and after flight and during overhaul, and certifies to the airworthiness of inspected airplanes: makes inspections of varying degrees of thoroughness, depending on the hours of service since the last corresponding inspection, and whether airplane is to be overhauled or simply repaired; tries tightness of connections, checks fit of parts, starts engines and reads instruments, operates controls, and checks all other factors which affect the operation of the airplane, using flashlight, mirror, and hand tools as necessary; notes all repairs or adjustments found necessary and rechecks after work is done; prepares dismantling schedules for airplanes to be overhauled and checks parts and work during disassembling and reassembling; certifies airplanes for use and bears

responsibility for their airworthiness. Must hold licenses from Civil Aeronautics Authority as Aircraft Mechanic and Aircraft Engine Mechanic.

*AIRPLANE MECHANIC 5-80.100. Checks condition of airplane and engine, and makes repairs, replacements, and adjustments to each; inspects critical parts of the craft, such as electric and control systems, undercarriage and brakes, motors and propellers; performs any repairs that can be accomplished in the repair shop.

*AIRPLANE MECHANIC, LINE SERVICE 5-80.120 An AIRCRAFT MECHANIC who services transport airplanes entering and leaving an airport and performs any repairs short of overhaul required to keep the airplanes in safe flying condition: makes adjustments to and replaces parts, such as tires, wiring, and instruments, using mechanic's tools, chain hoists, jacks, and special wrenches; inflates tires, fills gasoline tanks and oil reservoirs, greases airplanes with grease gun, and wipes motors clean with rags; starts and warms up motors and taxis airplanes into position for servicing and loading; makes check of airplanes before flight, trying brakes, operating controls, reading instruments, and checking other vital parts.

*AIRPLANE MECHANIC, OVERHAUL 5-80.120 An AIRCRAFT MECHANIC who completely overhauls and repairs airplane parts: dismantles and repairs metal tail, fuselage, and wing assemblies, such as ailerons, elevators, and rudders, cutting out damaged sections and cutting, shaping, welding, and riveting on sheet metal patches; dismantles and repairs landing gear, interior furnishings, controls, and other equipment; makes repairs when feasible or installs new parts, using equipment, such as jacks, hoists, drill press, sheet-metal-working machines, and ordinary mechanics' tools; repairs fabric surfaces by covering with special cloth and spraying with dope. May disconnect and remove engine from airplanes for overhaul.

*AIRPLANE RIGGER 5-80.500. Alines wings and tail surfaces with the fuselage, and installs and adjusts bracing wires, struts and control cables: bolts wings to fuselage and bolsters wing tips with blocks; secures tie rod or struts to wing and fuselage fittings with clevis pins, and tightens tie rod by rotating it with a wrench; checks angle-of-incidence with a level and conforms this angle with that specified by a rigging chart by altering the tension in front or rear flying wires and landing wires; attaches tail surfaces, alines them, and braces with tie rod or struts; cuts and splices control cables and installs them between the control horns and cockpit controls.

*AIRPLANE-TANK-AND-COWL MECHANIC 5-80.120 An AIRCRAFT MECHANIC who specializes in the inspecting, testing, and repairing of airplane fuel tanks and lines, engine cowls, and exhaust pipes: removes equipment from airplane and examines it thoroughly; tests tanks with air pressure and soapy water, feels them for weak spots, and forms and welds on sheet metal patches; forms new exhaust pipes and engine cowls from sheet metal and welds them as necessary; cuts and bends to shape new fuel lines; uses various metalworking machines to cut and shape metal parts and hand tools to remove and install them in airplanes.

*AIRPLANE WOODWORKER I 4-33.916. Constructs, by hand and machine, wooden parts of aircraft, such as fairing, door and window frames, floorboards, and component wooden members of the primary structure.

AMMUNITION-PROOF TECHNICIAN 0-50.50. Makes routine tests on small arms ammunition samples for such qualities as bullet velocity, accuracy, and armor-piercing qualities: measures velocity of bullets and gun barrel pressures, using chronographs and special chamber-pressure measuring devices; tests accuracy of ammunition by measuring hang-fire, dispersion and functional operation, using special testing equipment; shoots armor-piercing bullets of various types into armor plate and measures the depth of penetration; hand loads ammunition with measured quantities of powder for use as test standards; records test results, making necessary calculations using formulas; makes routine repairs to arms and testing equipment.

ANGLE PUNCHER AND SHEARER 6-88.621. Punches holes through long or short angle bars, and shears them to desired lengths: sets and adjusts punches, dies and cutter on machine so that the holes will be correctly centered and punched according to specifications; sets material in holder of machine and pulls lever to punch holes and cut material.

ANNEALER I 6-87.110. Tends an annealing furnace in which metal parts are subjected to heat treatment to relieve internal strains, and to soften and strengthen the metal: packs parts with sand in iron pots or boxes and seals them with clay to prevent uneven heating of parts; loads pots or boxes on a railcar and pushes it into furnace, or on a conveyor truck that carries them into furnace; lights oil, gas, or pulverized coal burners and regulates fuel and air supply to control heat in furnace so that temperature is raised gradually to desired point at which it is held for proper length of time; allows furnace to cool slowly and unloads or supervises unloading of metal parts; may heat metal parts to predetermined temperature and quench them in oil or water to harden them.

ANNEALING-BATH OPERATOR 6-87.150. Relieves the strains set up in artillery cartridge cases during the drawing operations by immersing the strained portion of the cases in hot chemical solution: inserts cases in a special rack and lowers the cases into the solution, using a chain hoist; maintains required level of solution in tank by adding additional chemicals as necessary; removes rack after a specified period and cools the cases in water.

ARBOR-PRESS OPERATOR 6-88.611. Operates a power-driven or hand-operated press to force together tightly fitting parts, such as arbors, bushings and the like, onto shafts or into housings that support them: alines parts under ram of press; pulls down on lever, or steps on pedal, causing ram to descend and force one part into the other.

ARMATURE BANDER 6-99.111. Winds steel wire around armature core or around ends of coils where they protrude from core to hold coils in position against centrifugal force when armature rotates: mounts spool of steel wire in holder on workbench; mounts armature in frame with shaft parallel to bench; fastens end of wire to pin wedged in core slot; places strip of insulating material around core where wire is to be wound and places strips of copper crosswise on insulation; turns armature with hand crank bolted to shaft, winding wire tightly around core, until proper number of turns have been made; bends copper strips over wire band to hold wire in position and solders them together. May wind armatures, wind coils, shape coils, and perform other duties in repairing electric motors.

ARMATURE WINDER I 6-99.011. Winds coils of wire into slots of armature core: mounts core vertically in a frame fixed to a horizontal shaft and lines each core slot with insulating material; fastens end of wire from reel to core and rotates frame by hand; guides wire from one slot to another to form a coil and cuts wire when revolution counter shows enough wire has been wound; taps coils firmly into slots and drives in wedges to hold them in place against centrifugal force.

ARMATURE WINDER II 6-99.011. Lines slots of armature core with insulating material and inserts ready wound coils; wedges coils tight and taps them down; scrapes insulation from ends of coil wire and solders them at the correct places, exercising great care to insure correct connections.

ARMATURE WINDER, REPAIR 6-99.011. Winds new coils on armatures of used generators and motors: cuts insulating material to fit slots on armature core; places insulating material in bottom of core slots; cuts wire to length and winds in place, or counts turns of wire in coil being replaced and winds on corresponding number; sometimes inserts ready-made coils and hammers them in place. May test armatures; solder ends of coils to commutator segments; wind field coils; test motors for defects; and perform other duties pertaining to motor repairing.

*ARMORER 5-83.541. Repairs, assembles, and tests firearms and related items: inspects firearms for action and accuracy, using gages; conducts tests of firearms, using a variety of testing equipment, such as mechanical gun rests while firing at targets, and measuring sizes, temperatures and hardness of parts; compares reports of tests made, making recommendations for improvement of parts.

ARMORING-MACHINE OPERATOR 7-00.211. Winds a protective covering around insulated wires, such as submarine cables and underground cables: starts winding machine and feeds insulated wire into it; threads protective wire through guides of machine that automatically winds it around wire.

*ASBESTOS WORKER, GENERAL 5-33.110. Covers with insulating material the exposed hot or cold surfaces of equipment, such as boilers, ducts, pipe lines and tanks; binds wires around object being insulated either to hold prefabricated insulating material in place or to form a base and reinforcement for plastic insulating

material; applies coats of plastic insulating material with trowel.

ASSEMBLER (firearms) 4-93.771. Assembles and disassembles rifles, pistols, automatic weapons, accessories and parts, making necessary changes, such as filing, drilling, and riveting; detects and remedies any faults found on firearms, using machines and tools common to machine shops.

*ASSEMBLER (shipbuilding) 4-84.012. Assembles and erects various parts of a ship in the assembly shop or at the assembly yard: sets columns, beams, girders, and other structural parts and bolts them temporarily in place on the ship; supervises the hoisting of parts or equipment in place on the ship.

AUTOCLAVE OPERATOR 4-52.711. Charges, operates, and unloads an autoclave (high pressure vessel) that is used in manufacture of chemicals: charges the vessel with predetermined amounts of chemicals; checks valves for operation; raises temperature of autoclave by increasing steam pressure; watches pressure, temperature, and time by observing pressure gages and electric recording thermometers; unloads the product at the completion of the chemical reaction by opening valves, and prepares autoclave for another run. The correct amounts of materials and conditions of operation, such as pressure, temperature, and time, are of great importance for the proper processing of chemicals.

*AUTOMOBILE-GENERATOR REPAIRMAN 5-81.410. Tests and repairs automobile generator, performing duties, such as testing generator in testing device for amperage output, disassembling generator with wrenches and other hand tools, examining brushes and armature for worn or defective parts, and refacing commutators.

*AUTOMOBILE MECHANIC 5-81.010. Repairs automotive equipment, performing duties such as disassembling and overhauling engines, transmissions, clutches, rear ends, and other assemblies on automobile, replacing worn or broken parts, grinding valves, adjusting brakes, tightening body bolts, and alining wheels; uses hoists, various sized wrenches, gages, drills, grinding wheels, and other general or specialized machines, gages, and tools. This worker may be restricted to repair of automobile motors, transmissions, and clutches, the remainder of repair work being performed by other workers.

*AUTOMOBILE MECHANIC, MOTOR I 5-81.610. Repairs or replaces defective parts in the motors of automotive vehicles: may inspect motor for imperfections, detecting them mostly by ear; disassembles motor; repairs or replaces defective part; reassembles motor; inspects operation of motor.

*AUTOMOBILE-RADIATOR MAN 5-81.530. Cleans and repairs automobile radiators, pumps, and other parts of cooling system: diagnoses trouble by visual inspection or by testing flow through radiator core with a motor-driven pump and gages; flushes radiator with cleaning compound; cleans radiator cores by loosening bolts and screws, removing core from automobile, and boiling it in hot water, or immersing it in acid bath; tests radiators for leaks by running water through core, or testing it with compressed air in water tank; solders leaks in core; repairs water pumps by disassembling pump, replacing worn parts, and reassembling; cleans scale and dirt from motor jacket by loosening bolts and removing side plates on engine block, scraping scale from between cylinder walls with screw driver or scraper, and blowing out remaining dirt with compressed air hose; inspects and replaces thermostats if not functioning properly; installs new cores, radiator hose, and pumps when necessary. May paint repaired radiators.

*AUTOMOBILE-REPAIR SERVICEMAN 5-81.910. Examines automotive vehicles to determine the need and extent of repairs: ascertains nature of needed repairs by road test, by means of mechanical testing device, or by visual inspection. May supervise AUTOMOBILE MECHANICS.

*AUTOMOBILE TESTER 5-81.920. Determines the need and extent of repairs to be made to automobiles: drives automobile over roads, noting the performance of engine, clutch, transmission, brakes, and other parts that can be tested in this manner; examines automobile for body and fender dents, wheel alinement, headlight adjustment and other items; reports findings to superior. May examine engines after they have been disassembled, inspect differential and

other parts during repair process, and instruct the various workmen as to procedure in making repairs.

B

BABBITTER I 6-78.911. Tins and babbitts connecting rods and connecting rod bearing caps in a centrifugal spinning machine: applies acid to surface to be tinned with swab or by running piece over an acid-soaked felt roller; tins bearing surfaces by dipping piece in molten tin; places tinned pieces in spinning machine in position near spinning mechanism and starts machine; pours ladle of molten babbitt into machine, which spins metal against tinned bearing surfaces where it is instantly cooled by a blast of compressed air; stops machine, removes pieces; scrapes and cleans excess metal from bolt holes and edges.

*BABBITTER II 4-78.911. Applies bearing metal to bearing surfaces of metal parts: swabs or dips bearing surface in acid and dips bearing in molten tin to coat surface with tin; clamps work in a fixture; melts babbitt metal (bearing metal) in a ladle; pours molten bearing metal into fixture which restrains the metal to the desired shape until it sets; removes work from jig when bearing metal has cooled; scrapes bearing surface with a hand scraping tool to shape it accurately to conform with the surface it is to run in contact with, after part has been machined in a boring mill or lathe.

*BAKELITE MIXER 5-10.011. Mixes resins with solvents to produce solutions or varnishes containing specified percentages of resin and alcohol. Varnishes are used for coating or impregnating paper or fabric material used in manufacture of bakelite.

BALANCER I 7-02.351. Weighs pistons and connecting rods on delicate scales; groups parts according to weight range; discards parts above or below limits. May use metric system, determining weights in grams and kilograms.

*BALLOON-ENVELOPE REPAIRMAN 5-80.600. Makes repairs to balloon and airship envelopes to keep them in good operating condition, and assists in inspecting and inflating them; uses cements, dopes, cleaners, and suspension patches in repairing rubber fabrics.

*BALLOON RIGGER 5-80.700. Assembles and services all types of free and captive balloons and makes inspections and repairs to keep them in good operating condition: works from blueprints or specific instructions; cuts and assembles fabrics used on balloons and airships; assists in handling hydrogen cylinders and in the inflation of balloons.

BARREL CENTERER 6-78.151. Drills and countersinks a hole in each end of a rifle barrel before it is drilled: places end of barrel between two V-shaped jaws of centering machine; clamps barrel in jaws; starts machine and pulls centering drill lever; shifts spindle and pulls countersinking drill lever; adjusts machine and puts in new drills and countersinks.

*BARREL CHAMBERER 4-78.212. Counterbores and reams chambers in barrels of guns to shape of cartridges to be used: fastens reamers in chuck at head of lathe, holds barrel in place, starts lathe, and feeds barrel against reamer by turning handwheel; checks work with gages and micrometers.

*BARREL DRILLER 4-78.213. Operates a group of barrel-drilling machines to drill the bore in small arms: inserts barrel into chuck on machine; adjusts and centers the barrel into locating bearing and locks bearing; adjusts the oil feed; slides the carriage up to the barrel and controls the feed by hand until the drill is properly started, then locks the carriage and starts the automatic feed; when drilling has been completed and feed stopped by automatic control, suts off the oil, loosens and slides the bearing back out of way and removes barrel. Sets up machines, and checks their operation by measuring the work with depth and diameter gages and makes necessary adjustments.

BARREL HEATER 6-88.732. A HEATER, FORGE who heats billets, to be used in rolling out into gun barrels, in forging furnace.

*BARREL REAMER 4-78.211. Reams out marks left from drilling and brings bore of barrels to proper size, by machine: sets barrel in holding device of reaming machine; adjusts reaming tool in tool holder; starts machine and observes action

of reaming process; checks work with gages and micrometers.

*BARREL RIFLER 4-78.214. Cuts the rifling in the barrel of small arms on a rifling machine: screws rifling nut onto barrel and places barrel in machine; slides rifling rod with attached cutter head through bore of barrel and locks barrel in position; moves carriage to the feed head; mounts the cutters in the cutters in the cutter head, and adjusts them to cut rifling of required conformation; starts oil feed, starts machine and allows it to run until rifling is cut; measures rifling with gage; loosens lock nut, removes barrel from machine, and, after inspecting rifling for defects, removes rifling nut from barrel; shapes, hardens, and tempers cutters; fits them into the cutter head, and hones and adjusts to cut rifling according to specification.

*BARREL ROLLER II 4-88.027. Forms the barrels of small arms by heating billets to a proper working temperature in furnaces and passing the billet between rollers until the required shape is obtained: places billet in pre-heating furnace and heats to required temperature as indicated by a pyrometer; transfers the billet to a second furnace with tongs and increases heat to rolling (predetermined) temperature; withdraws billet from furnace and feeds it end first between formed rollers (a barrel catcher working on opposite side of rolls catches billet and returns it through next groove between rolls); passes the billet back and forth through successive grooves until the required size has been obtained, using calipers and micrometers or fixed gages to check diameter. Makes adjustments to machine as necessary.

*BARREL STRAIGHTENER 4-93.772. Straightens drilled gun barrels to remove bends and crooks: sights through the bore to see if light is reflected evenly throughout entire length; when deviation is noticed, hits barrel sharp rap with mallet or soft hammer, or places barrel on anvil of press and exerts pressure on it by lowering press ram; sometimes uses a special shaped screen at end of barrel and sights from other end of barrel to detect distortion of lines on screen, thus indicating crooks in barrel; inspects straightened barrel for perfection and lays it aside for further processing.

BARREL THREADER 6-78.291. Makes threads on gun barrels for fastening to stocks: fastens barrels to chuck of lathe (various types of machines may be used depending on the size and type of gun barrel being treated); starts machine and oil feed and observes operation while the thread is being cut; inspects the threading to determine quality, using gages to check on accuracy.

*BARREL TURNER 4-78.011. An ENGINE-LATHE OPERATOR I who machines gun barrels to required external size and shape, using steady rests and taper attachments.

*BATTEN MAKER 5-05.510. Makes a wooden batten (corruption of pattern) of the curve (camber) of the old ship plate, to be used in the shaping of the new plate or replacement piece, using such carpenter's tools as a saw, hammer, and hatchet.

*BEATER OPERATOR II 4-52.410. Controls the operation of a machine in which long strands of nitrocotton or pyrocotton (explosive mixtures) are cut into smaller segments of specified consistency for further processing: fills feed tanks with nitrocotton slurry by operating pumps; starts beater blades and turns valves to pass nitrocotton through blades; adjusts blades continually during beating operation by turning a handwheel in accordance with a meter reading; pumps macerated cotton slurry over a sieve to remove most of the water; takes samples of nitrocotton and sends them to laboratory for approval of texture; starts agitators in tub to loosen nitrocotton and pumps it into poaching tubs.

*BENCH ASSEMBLYMAN 5-03.554. A SKELETON ASSEMBLER who puts together smaller parts, such as ribs, spars, stiffeners, and other fittings that can be more advantageously assembled at a bench using relatively smaller jigs and fixtures. Workers may be specifically designated according to proficiency acquired, as bench assemblyman, first class; bench assemblyman, second class.

BENCH GRINDER 6-77.710. Cleans and rough-finishes the surfaces of metal objects by holding them against the rotating abrasive wheel of a grinding lathe which is little more than a motor-driven horizontal axle on which one or more abrasive wheels are mounted: turns on electric motor to start machine; lifts object to be ground and rests it against a small shelf or rest adjacent to wheel; presses work against wheel, turning it about with hands to accomplish the desired grinding.

*BENCH HAND II 4-80.010. A SHEET-METAL WORKER II who works inside of a shop, fabricating various articles and equipment out of sheet metal by hand and by operating the various machines used in sheet-metal work. May lay out articles.

*BENCH HAND, METAL PATTERNS 5-17.010. A PATTERNMAKER, METAL who performs all finish hand work on metal castings designed for use as metal patterns: dresses castings down to exact dimensions required by blueprints by drilling, filing, grinding, or scraping; fills in undesired low spots in castings with metal or wax; checks result with calipers, micrometers, scales (rules), and other measuring instruments.

*BENCH REPAIRMAN I 4-75.120. A MACHINIST, BENCH who repairs tools, dies, gages, and light machinery.

*BENDING-ROLL OPERATOR 4-88.742. Rolls cold steel boiler, ship, or other heavy plate to any desired curvature by passing the plate through the bending rolls of a roll machine: hoists plate to level of rolls and inserts one edge under top roll which is mounted directly above and centered between two bottom rolls; moves lever or handwheel to lower top roll onto plate; starts rolls in operation, which draws the plate between them, shaping it into an arc; continues adjusting top roll downward and passing plate between rolls until plate of correct curvature is obtained, which is determined by adjusting a template of gage to the plate.

*BESSEMER-CONVERTER BLOWER 5-92.302. Supervises the operation of a Bessemer converter in which molten pig iron is converted into steel by the oxidation and elimination of carbon, manganese, and silicon: directs charging of molten pig iron into converter; starts blower which forces blast of air through tuyeres (pipes) into molten metal; controls volume or pressure of air blast by regulating blower speed; regulates temperature of the metal by admitting steam or by ordering addition of cold scrap metal; determines rate of oxidation of the elements and composition of the steel by watching the flame issuing from converter mouth; recarbonizes by adding alloys of specific percentages of carbon, manganese, and silicon; permits mixture to set for a few minutes and then pours it into ladles; takes metal to open-hearth furnace for removal of phosphorus which is not removed in converter or to a mixer for storing. May operate levers to tilt the converter.

*BLACKSMITH II 4-86.010. Forges metal articles and parts for the building, repairing, or manufacturing of equipment: heats metal in a forge and hammers it into desired shape on an anvil, in a steam, electric, or compressed-air-powered hammer; forge-welds metal by heating parts and hammering them together; sharpens hand and machine tools, such as chisels, drills, and picks, by heating them and hammering the cutting edges to proper shape; tempers metal by heating it to proper temperature and then dipping it into a quenching medium; repairs or builds equipment.

*BLACKSMITH FOREMAN 4-86.010. Supervises a group of workmen engaged in forging: determines procedure of work; assigns duties to workmen and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of supervisory or minor administrative nature. Must be skilled in all phases of forging.

*BLEACHER OPERATOR I 6-52.712. Treats chemical solutions with bleaching reagents to improve their color: pumps liquids to be bleached into tank; adds amounts of bleaching ingredients determined by formula by pumping or opening valves, and starts agitator; observes temperature recorder and regulates steam valves; samples bleached product and sends it to control laboratory to check for chemical specifications; pumps product to storage tanks or to another department for further processing; records weights of materials used and time required for bleaching; maintains, adjusts, and makes minor repairs to equipment.

*BLENDER II 6-52.437. Blends separately manufactured batches of smokeless powder to obtain a final product having uniform ballistic properties: directs HANDLERS V in charging top bin of the blender with different batches of powder; manipulates levers in control room to drop powder repeatedly by gravity from one bin to another until it is thoroughly mixed; drops blended powder from bottom bin to transfer buggies and directs HANDLERS V in moving it to the packing room.

*BLOCK-BREAKER OPERATOR 6-52.431. Breaks up pressed cotton cakes into light fluffy cotton in a block-breaker machine to facilitate the further mixing processes in the manufacture of explosives: feeds cotton cakes into a mechanically driven screen that sifts it through wire mesh or feeds cakes into the hopper of an electrically powered cylinder fitted with spikes which break up the cotton; removes cotton for further processing.

*BLOCK-PRESS OPERATOR II 6-52.442. Compresses colloidal smokeless powder into a dense mass using a hydraulic block press: charges press with sponge or macaroni-like forms of colloidal smokeless powder; closes compression chamber and manipulates valves to compress colloid; removes block of compressed colloid from chamber. Usually specifically designated according to the stage in which the colloid is pressed, as preliminary-block-press operator, final-block-press operator.

*BLUER II 6-93.777. Colors metal parts of guns to improve appearance: heats parts packed in bone or chemicals; loads parts into wire rack and lowers rack into vats of prepared chemicals by hand or with hand-operated hoist; raises racks when bluing is completed and washes parts in water or oil. Must be familiar with bluing materials used, and with danger inherent in handling chemicals and in the spoiling of heat treating of parts.

*BOAT-OAR MAKER 4-33.366. Performs the carpentry necessary to cut and shape oars, using various special planes, drawknives, and other hand tools: clamps oar in vise; shapes blade, loom (shaft from handle to blade), and handle, trimming edges and rounding corners according to specified dimensions; smooths and sands surface preparatory to varnishing or painting; usually identifies work with personal markings on the blade.

*BOATBUILDER, STEEL 4-80.070. Constructs, fits up, and repairs all kinds of small steel boats, pontoons and floats: works from drawings and templates to set forms, bend frames, lay decks and line up a boat, using steel boatbuilder's tools, and such tools as shears, punches and bending machines.

*BOATBUILDER, WOOD 5-25.610. Constructs and repairs small wooden boats, floats, pontoons and motorboats, using such boatbuilder's tools as a drill and screw driver, brace, hammer, saws, planes, chisels and calking tools.

*BOILER TESTER 6-83.130. Makes final test and inspection of boilers and other closed vessels: connects water-pressure line to vessel; fills vessel with water; regulates the pressure of the water, as indicated by pressure gage, to that for which the vessel was designed; calks minor leaks; approves vessels back to shop for correction of defects.

*BOILERMAKER I 4-83.100. Performs any or all machine and hand operations necessary to fabricate and assemble boilers, tanks, vats, and other vessels made of heavy steel plates: lays out work on plates; cuts plates to size and shape; punches holes in plates for rivets or bolts; bends angle irons or plates to desired radius; forms flanges on plates; forms concave plates for boiler or tank heads; forms or shapes plates in bulldozer; bends plates; assembles headers, tubes, baffle plates, and other parts, riveting or welding parts together; calks seams and rivet heads; chips burrs from plate edges; fastens boiler tubes or flues into headers, expanding tube ends with an expanding tool.

*BOILERMAKER FOREMAN 4-83.100. Supervises a group of workmen engaged in fabricating and assembling boilers, tanks, vats, and other vessels made of heavy steel plates: determines procedure of work; assigns duties to craftsmen and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of supervisory or minor administrative nature. Must be skilled in all phases of boilermaking.

*BOILING-TUB OPERATOR II 6-52.454. Boils crude tetryl explosive to remove acids and impurities: turns valve to admit batch of crude tetryl slurry to boiling tank; starts agitators and boils tetryl by admitting steam to tank jacket for a specified period; allows tetryl to settle and draws off water with an electrical pump; washes tetryl by pumping fresh water into and out of the tank.

*BOILING-TUB OPERATOR III 6-52.465. Boils nitrocotton in a boiling tub to remove chemical and physical impurities: transfers a batch of nitrocotton slurry to

boiling tubs by operating an electric pump; boils the nitrocotton in a series of timed acid and neutral baths, manipulating steam valves to maintain temperature within specified limits; rinses nitrocotton in a series of hot and cold washes, turning valves to remove rinse water and to admit fresh water.

BORING-MACHINE OPERATOR, AUTOMATIC 6-78.041. Operates one or more automatic or semiautomatic machines that bore finished holes in metal parts: lifts part onto machine table by hand or with a hoist and sets clamps to hold it in position; starts machine and moves levers to advance cutting tools into position to start boring; stops machine when operation is completed and tools have automatically been withdrawn, and removes part from table; checks work occasionally to determine whether machine is adjusted correctly. May set up and adjust cutting tools to perform specified operation.

BORING-MACHINE OPERATOR, HORIZONTAL 6-33.411. Sets up and operates a horizontal single-spindled boring machine to bore holes of specific diameter and depth in wood parts to prepare them for assembly; fits bit into chuck of horizontal spindle and tightens chuck jaws with wrench; clamps stock on table and adjusts table to center stock with bit point; adjusts guide table or spindle stops to control depth of hole; starts machine and presses on pedal to move table bearing stock into rotating bit or to feed rotating bit into the stock; releases pedal to withdraw stock from bit or vice versa.

BORING-MACHINE OPERATOR, VERTICAL 6-33.411. Sets up and operates a vertical-single-spindled boring-machine to bore holes of specified diameter and depth in wooden parts: fits bit into chuck of spindle and tightens chuck jaws with wrench; turns handwheel to adjust table height, and starts machine; places and holds board on table, centering it under bit, and pulls on lever or presses on pedal that lowers and feeds rotating bit into board; releases pressure on lever or pedal, allowing bit to be withdrawn and removes bored board from machine.

*BORING-MILL OPERATOR 4-78.041. Performs such operations as drilling, boring, and facing on metal objects with boring mill, a machine designed to make cirular cuts in metal: clamps or bolts work to table or faceplate of machine; inserts appropriate cutting tools in machine and adjusts their position; starts machine, turns handwheels to control the action of cutting tools, engages automatic feed, and observes action of machine; stops machine and measures work with micrometers, gages, calipers, and scale to be sure machine work is carried out to prescribed dimensions; lubricates machine; sharpens cutting tools.

*BRAKE-DRUM-LATHE OPERATOR 5-81.110. Sets up and operates a brake-drum lathe to machine automobile brake drums, and a grinding machine to grind brake lining to proper arc: (1) adjusts axle and drum on spindle of lathe, clamping them in position; starts lathe spindle revolving and adjusts cutting tool to machine drum surface; feeds cutting tool into brake drum by hand, or adjusts mechanism that automatically feeds tool into brake drum; measures brake drum with calipers and stops machine after drum has been machined to proper dimensions; (2) clamps brake shoe in shoe-gage-and-lining grinder; grinds brake lining and shoes on grinding wheel to proper arc, as determined by radius of brake drum and measured by gages on machine. May assist BRAKEMAN, AUTOMOBILE, to repair, reline, and adjust brakes.

*BRAZER 4-85.310. Joins metal parts together by heating them with an oxyacetylene torch or electric-welding apparatus and melting a brass solder or any other hard solder into the joint. The process differs from welding in that there is no fusion of the parts themselves, they are merely joined by the adherence of the hard solder. It differs from soft soldering in that the adherence is closer.

*BROACHER, HAND 4-75.120. Broaches (shapes internal surfaces) metal parts by hand methods: (1) places hand broaching tool into opening and strikes it with a hammer to drive it through opening and cut away metal to shape of tool: (2) alines opening in part with machine ram on table of manually operated press which is equipped with a broaching tool; pulls down on lever to force tool through opening, thus cutting out the metal to the shape of the tool. A task performed by a MACHINIST, BENCH.

*BROACHING-MACHINE OPERATOR 6-78.051. Operates a machine that broaches (cuts away metal) external or internal surfaces of metal parts to accurate dimensions: lifts part by hand or hoist onto machine table and fastens it in place, usually with a special fixture; bolts or clamps broaching tool onto ram of machine; starts

machine and moves lever, causing ram to descend and push or pull tool over part and cut it to desired shape, or causing table to move part past tool. Machine may be set up by JOB SETTER II.

BUCKER-UP IV 6-95.083. A term applied to a RIVETER, AIRCRAFT; RIVETER, HAND IV; or RIVETER, PNEUMATIC III when bucking rivets: places end of bar against rivet inserted in the hole and resists force of hammer to spread the rivet; examines formed rivets for imperfections. May remove defective rivets by drilling out the shank with a portable electric drill.

*BULLET-ASSEMBLY-PRESS ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Regulates and repairs the mechanisms of a battery of power presses that assemble bullets into loaded cartridge cases to form the completed cartridge: sets up machines and adjusts them as necessary to keep them in operation; diagnoses the causes of faulty operation by examining the bullets and readjusts the machine, frequently removing, regrinding, and refiling the forming dies; synchronizes machine operations, using hand tools.

*BUMPER OPERATOR I 6-94.221. Shapes sheet metal according to specifications or removes wrinkles and other irregularities from previously-formed sheet-metal parts, using a machine equipped with a reciprocating hammer: changes dies of machine according to the surface contours and the thickness and hardness of metal to be shaped or smoothed, and adjusts eccentric drive arm of machine to regulate the force of the striking hammer; lubricates surfaces of part; holds and moves part under the rapidly reciprocating hammer to shape or smooth the surfaces as required, assisted by BUMPER-OPERATOR HELPER when shaping or smoothing large sheets; hammers metal partially formed by machine to specified dimensions, using various hand hammers.

BURNISHER, HAND 6-77.320. Polishes those parts of metal objects that cannot be polished on a buffing or polishing wheel; selects properly shaped burnishing tool; dips blade of tool in soapy water and rubs blade on part to be polished, exerting sufficient pressure to polish the article without scratching or marring the surface; keeps burnishing tools in good condition by rubbing the blades, first in fine-powdered emery to remove scratches and then in buffing rouge to polish them.

BURRER, HAND 6-77.510. Removes burrs and rough edges from machined metal parts: lifts part by hand or hoist onto bench or into bench vise; clamps part into vise; removes burrs and rough edges, using hand files, hammer and chisel, and brace with burring bit; may use power-driven burring brush for the inside of housings and other pieces inaccessible to hand tools; inspects work visually and tactually.

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*CABINETMAKER I 4-32.100. Performs hand carpentry necessary to cut, shape, and assemble prepared parts of aircraft and ship fixtures: studies drawing of article to be made; lays out outline or dimensions of part on paper or stock lumber specified; operates such woodworking machines as band saw, jointer, mortiser, tenoner, molder, gainer, and variety machine to cut and shape parts from stock, or may obtain parts already prepared by other workers; trims component parts of joints to make them fit together snugly, with hand tools, such as plane, chisel, or wood file; bores holes for the insertion of screws or dowels, by hand or machine; daubs glue on joints with brush; fits parts together tightly until glue is dry; drives nails, dowels, or screws through joints to reinforce them; glues and fits subassemblies and other parts together in clamps to form completed unit; finishes surfaces and joints of article with sandpaper and hand scrapers. May install such hardware as hinges, catches, or drawer pulls. May work on either a production line or on special orders.

*CABLE SPLICER II 5-53.950. Splices insulated copper wires to join two multiple conductor cables in order to preserve the continuity and insulation of each conductor: splices wires at junction of the two cables and insulates splices by drying out moisture, by wrapping with paraffin-soaked muslin and by covering splices with a lead sleeve (protective fitting over bundle of spliced wires); connects sleeve to cable sheathing by a lead joint; tests pairs of wires for electrical continuity and insulation by means of a buzzer system and connects wire ends to numbered terminals to give pairs the same identifying number at remote panel box as at the control office.

*CABLE TESTER 5-53.340. Makes tests and clears trouble on cable of telephone and telegraph circuits: drives an automobile along route of cable; climbs unstepped poles and rides cable strand from pole to pole on a cable car; makes tests to locate cable trouble using a wheatstone bridge; tests new or repaired cable, making insulation tests, capacity unbalance tests, electrolytic tests and tests for the correctness of cable loading using standard test sets; interprets cable diagrams, charts, and other instructions.

CANOPY INSPECTOR 6-27.142. Examines the seams of parachute panels and canopies for defective stitching, such as skipped stitches and unmatched cross seams: scrutinizes the seams for discrepancies, frequently examining them over a fluorescent light; marks defective stitching by pinning pieces of colored cloth on the seams; trims the ends of seams, using scissors to make them even with the rest of the part. May spread canopy on work table and scrutinize it for discrepancies while walking along the length of the canopy.

CANOPY STRINGER 6-27.965. Strings shroud lines through the perpendicular seeams of a parachute canopy for connecting the canopy to the parachute harness: punches holes in the centers of the panel seams just below the top hem for insertion of shroud lines, using a pointed metal punch; flattens the ends of shroud lines with a mallet to facilitate threading of stringer needles, and inserts both ends of each line into a needle; working from the interior dome of the canopy outward, inserts shroud lines through the holes in the opposite panel seams so that the center of the line lays in a semicircle around the top hem; threads and pulls the line down through the panel seam, drawing it out just above the reinforcements attached to the bottom hem of the canopy; braids ends of lines to prevent tangling. Usually performed by two workers working together so that each advances one panel seam in the same circular direction as the stringing progresses.

*CANVAS WORKER II 4-27.811. Fabricates and assembles ship and boat canvas parts, such as sails, awnings, boat, gun and bunk covers, working from simple drawings and material specifications: prepares canvas for sewing by selecting and laying out material and cutting off lengths with hand shears or electric cutting machine; sews sections of canvas together on a power sewing machine; when hand-sewing grommets, measures and marks off grommet holes on canvas, punches holes, using a mallet, punch and hardwood block, and sews a galvanized iron ring to the edge of the hole, using a sailmaker's palm, needle, and linen thread; attaches ropes and metal fittings to canvas by hand sewing.

CARBURETOR INSPECTOR 7-02.711. Inspects carburetor after assembly for proper float setting, by means of gages; determines the seating of metering and main jets, and checks orifices with plug gages for proper size.

*CARBURETOR MAN I 5-80.130. An AIRCRAFT-ENGINE MECHANIC who specializes in adjusting and repairing engine carburetors and gas filters: adjusts air and gas supply, so carburetors will function efficiently, by turning adjustment screws on carburetors; dismantles defective carburetors, using wrenches, screw drivers, and other hand tools; cleans parts with rag or brush and gasoline, or other cleaning fluid; examines parts carefully for defects; tests needle valves by visual inspection or by wire gages; reassembles carburetors, replacing defective parts with new ones; adjusts air and gas supply after carburetors have been installed on aircraft; shortens or lengthens throttle rods for correct operation of carburetor or replaces throttle assembly with new one.

CARBURETOR MAN II 7-81.610. Performs essentially the same duties as CARBURETOR MAN I except that he adjusts and repairs automobile carburetors, which are less complex than airplane carburetors; also cleans and repairs carburetor air filters.

*CARMAN V 5-79.020. Performs various duties in connection with (1) building, repairing, dismantling, painting, upholstering and inspecting of passenger and freight cars, both wood and steel; (2) building and repairing of motor cars, lever cars, hand cars and station trucks; (3) building and repairing, removing and applying of locomotive cabs, pilots, pilot beams, tender frames and trucks; (4) and planing mill cabinet and bench carpentry work, pattern and flask making, and all carpentry work in shop and railroad yards.

*CARPENTER, FAIRING 5-25.640. A CARPENTER, SHIP who locates and marks the reference points used in assembling a ship's hull and who checks the installation of parts and members: working from blueprints, directing helpers, and using transit, plumb line, tape, and level, establishes exact centers, centerlines, and

other references, so that the hull will be smooth and even (fair); chalks lines and centerpunches points; uses instruments and helpers to make certain that parts and members installed are plumb and fair, and true to previously established reference marks.

*CARPENTER, SHIP 5-25.640. Performs skilled carpentry operations in the construction of a ship or in the making of repairs, using carpenter's tools, the broadax and the adz; builds wooden foundations, lines up and trues keel blocks, sets shores, erects stages, builds ship's cradle, and prepares vessels for launching; also lays decks, and prepares and installs in a vessel the necessary backing strips, furring pieces, aprons, uprights, sills and other wood framing against which the finished work is supported; also prepares cargo battens and wood sheathing for bulkheads.

*CASE-HARDENER 4-87.210. Imparts a hard "skin" to steel objects without affecting the toughness and hardness of the interior by packing the objects in carbonaceous material and heating them to a prescribed temperature for a prescribed time, then allowing them to cool.

CENTERLESS-GRINDER OPERATOR 6-78.511. Adjusts and feeds an automatic cylindrical grinding machine that grinds cylindrical objects by rolling them between the rims of two abrasive wheels; selects and bolts in place appropriate abrasive wheels; turns handwheels to adjust spacing between rims of wheels; moves levers to select appropriate speeds for each wheel; clamps feed guide in position to guide work into position between wheel rims, and clamps tall guide in position to receive work from between wheel rims; starts machine and feeds work onto feed guide or keeps hopper filled with objects that are automatically fed. The adjustment of the machine may be done by a JOB SETTER II.

*CENTERLESS-GRINDING-MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Services and repairs the mechanisms of automatic, centerless-grinding machines that grind the steel cores of armor-piercing bullets to specified diameters; alters machine set-up according to type of material to be ground by referring to an instruction manual and by making adjustments, such as replacing the feed rest and resetting its position relative to the grinding wheel, and adjusting the angle between the grinding wheel and the regulating wheel; periodically gages ground parts to make sure they conform to specifications; frequently dresses (sharpens and evens) the grinding and regulating wheels by clamping a dressing tool in a provided holder and turning a crank that feeds the tool into the rotating wheel; dismantles the machine as necessary to replace worn, damaged, or broken parts; assists CENTERLESS-GRINDING-MACHINE OPERATOR, AUTOMATIC in reducing jams in the automatic feed mechanisms.

*CHAMBERMAN I 4-52.721. Makes sulphuric acid; reads and reports on hourly report form, the temperatures of the chambers and other processing equipment and the density of the acid during various stages of processing; inspects and regulates by hand valves the acid pumps, water sprays on the chambers, and the ammonia oxidation unit.

*CHAMBERMAN II 4-52.722. Controls process by which sulphuric acid is made from sulphur dioxide gas resulting from the roasting of zinc sulphide ore preparatory to recovery of the zinc; regulates flow of steam, nitric acid, fumes, air, and sulphur dioxide by means of valves into a series of lead-lined chambers where the sulphur dioxide, due to chemical reaction, is oxidized to sulphuric acid in the presence of steam and nitric acid, forming in small drops which fall into lead pans at the bottom of the chambers; observes progress of reaction through windows in chambers; collects and sends samples of sulphuric acid to laboratory for analysis; operates fans which force gases from last chamber to another unit for extraction of nitric oxide (poisonous gas resulting from reaction) before they escape from stack. May supervise roasting of zinc sulphide ore in furnaces.

*CHARGING-MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Keeps in operating condition automatic machines that compress powder into bullets to form tracer (visible in flight) bullets; adjusts the mechanisms that load powder into the bullets and compress it; replaces worn or broken dies and punches; cleans bullet-holding dies with a motor-rotated polishing wheel.

*CHECKER 4-78.675. Examines fabricated sheet-metal parts for conformity to specifications; determines that specified metals have been used in fabricating parts, utilizing his knowledge of the appearance of metals and any identifying

markings stamped on the metals by the shop; measures thickness (gage) of the sheet metal with micrometers; checks contour of part and location of drilled holes by superimposing template on part; measures diameter of holes, using a special scale; marks or reports defects for correction. May correct minor defects, using a metal scraper and hand files.

*CHECKER 6-52.476. Coordinates the loading, operation, and discharge, of nitrators and wringers used in processing nitrocotton by operating a system of signal lights from a central control board: signals TETRYL-NITRATOR OPERATORS and COTTON-WRINGER OPERATORS I indicating which nitrators and wringers are to be used by pressing buttons and illuminating appropriately colored lights above the machines; records times of charging and discharging in each operation.

COIL TAPER, MACHINE 6-99.120. Insulates and reinforces armature coils by wrapping them with either cotton, asbestos, or paper tape, using a motor-powered taping machine: slides roll of tape onto spool holder of machine and threads it through guide pins; grasps armature coil in both hands between the winding ring of the taping machine and depresses a pedal to start the machine; holds coil in the center of the winding ring (to the periphery of which is attached a spool of tape), and as the winding ring rotates about the coil, maintains a tension between the coil and tape so that the latter is wound tightly and uniformly; frequently tightens the tape about the coil by twisting it with a sheet of rubber held in the palm of the hand; cuts tape, removes coils from the machine, and pastes or glues loose end to the coil; taps ends of coil with a rawhide mallet to form a smooth surface.

COILER I 6-93.192. Operates a machine which coils heated bars of steel into coil springs: grasps end of bar with tongs and inserts one end in slot of smooth cylinder of machine; starts machine with pedal to coil bar on revolving smooth cylinder of machine, the coils being formed and spaced by a grooved cylinder revolving close to the smooth cylinder; releases pedal and pulls coiled spring from machine with tongs.

*COKE-OVEN REPAIRMAN 5-83.651. Makes repairs on metal parts of coke ovens to keep them in operating condition: dismantles and replaces parts, such as vertical sliding doors with wrenches, hammers, and screw jacks; repairs broken or weak links in door hoist chain, removing the old one with bolt cutter, a hack saw or files, and fitting in a new link using hammers; removes and replaces broken gears and bearings in the hoist mechanism; replaces heat-oxidized metal parts in the furnace by breaking down the firebrick lining with a bar and chipping off rivet or bolt heads on the parts with an air hammer or sledge and chisels, and installs metal parts, such as bars, channels, and frames, riveting and bolting them in place.

COLD-PRESS OPERATOR 6-88.631. Cold bends structural steel parts, such as bars, channels, beams and angles, in a cold press: examines part and corresponding template to decide the bending procedure and chalks guide lines on part; directs helpers in positioning and moving part between press jaws and in regulating the pressure of the jaws to shape the part to the contour of the template.

*COMMUTATOR ASSEMBLER 4-99.161. Builds up a hollow cylinder of alternate copper bars and mica insulating strips to make a commutator: assembles copper and mica on a frame and drives in wedges to hold pieces in place; turns down surface in a lathe to make commutator round.

*COMPOSITION MAN 6-52.488. Blends various chemicals to produce mixtures of specified composition used in making pyrotechnic shells: (1) dries strontium nitrate by heating it in an oven and churns it in a screening barrel, reheating and rechurning the strontium nitrate as necessary until it is thoroughly dry; weighs out specified amounts of the strontium nitrate and other chemicals, such as calomel, asphaltum, and linseed oil coated magnesium according to formula; blends these chemicals into a uniform mixture in a blending machine; (2) empties containers of barium peroxide and magnesium received from MIXER OPERATOR IX into blending machine; starts machine to mechanically agitate the chemicals and produce a uniform mixture. Empties the blended mixture into containers and seals them, preparatory to further processing.

CONNECTING-ROD INSPECTOR 6-78.680. Inspects finished connecting rods under a strong light for straightness, faulty steel, milling work, and finish; marks defective rods with pencil and sets them aside for repairing or scrapping.

*COPPERSMITH II 4-80.080. Builds up assemblies of copper pipe and fittings and fabricates various articles of sheet copper: measures and cuts pipe lengths, slips fittings on them, and flares the ends with a hammer; using an oil or acetylene torch, cuts holes in pipes for branch lines, heats and manually bends pipe to desired shapes, and reduces pipe diameters by heating and drawing; solders pipe and fittings together to form complete assemblies; lays out, cuts, bends, solders, and rivets various shapes from sheet copper.

*COREMAKER I 4-82.010. Makes sand cores used in molds to form hollows or holes in metal castings: cleans core box, blowing out old sand with compressed air; dusts parting sand over inside of core box to facilitate removal of finished core; packs and rams core sand solidly into core box, using shovel, hands, and tamping tools; sets vent wires and reinforcing wires as sand rises in box; lifts box from core, leaving core on plate for handling and drying; repairs breaks in core with spoon; sends core to baking oven to harden it for use in foundry molds. May bake cores to harden them. May assemble cores of more than one part.

*COTTON-WEIGHER OPERATOR 6-52.486. Weighs out specified amounts of dried and fluffed cotton linters prior to the nitrating process in the manufacture of smokeless powder: rakes dried cotton linters into weigh cans, removing dust clusters and poorly processed cotton; moves weigh cans along overhead monorail to section of rail connected with scales; adds or removes linters to obtain specified weight; pushes weigh cans along monorail to a drive chain which conveys cans to next operation. May regulate drier temperature and speed of conveyor.

*COTTON-WRINGER OPERATOR I 6-52.423. Removes most of the liquids (either acid or water) remaining in nitrocotton, using a centrifugal wringer: turns a valve to admit partially processed nitrocotton slurry into nitrator; increases the speed of the filled wringer for a specified period by turning switch; stops wringer and loosens nitrocotton from the walls with a scraper, fork or wooden paddle; opens discharge gate in wringer bottom and pushes nitrocotton through aperture. May take samples of nitrocotton for laboratory analysis. When removing acid from nitrocotton, wears a mask and operates wringer from behind a shield as a protection against acid and toxic fumes.

*COWLING-INSTALLATION ASSEMBLER 5-03.554. A SUBASSEMBLER III. A FITTING MAN who fits together and installs sheet-metal cowlings used to cover and streamline parts of an airplane, such as the engine, landing gear, and parts of the fuselage: drills holes for screws, rivets, and bolts, using an electric hand drill; removes dents and shapes areas of the metal using a rawhide hammer and smoothly curved steel blocks; bolts, screws, and otherwise attaches cowlings to the airplane.

CRANKSHAFT PLUGGER 7-02.011. Plugs openings in cheeks and counterweights of a crankshaft, resulting from drilling operations, to form a continuous oil passage through inside of shaft: taps (cuts threads in) holes, using a hand-driven or power-driven tool; screws threaded plug into each hole, using a hand or power wrench.

*CRYSTALLIZER OPERATOR III 6-52.451. Tends a still to recover tetryl explosive from the benzene solution in which it was dissolved: turns valve to admit solution and hot water to still; starts mechanical agitators to mix solution to settle; cools mixture by running cold water over the tank surface, causing tetryl to settle out of benzene solution; turns valves to drain the benzene and the tetryl and water mixture from the still; cleans tank with water and acetone.

*CUPOLA REPAIRMAN 5-24.130. A BRICKLAYER, REFRACTORY BRICK who repairs and rebuilds the lining of a cupola: mixes sand, clay, and other refractory materials and applies mixture, with trowels and other hand tools, to burned areas in the brick lining of a cupola; tears out brick linings, when they are burned beyond repair, and relines cupola with new firebrick, using bricklayer's tools; closes and props drop-doors of cupola and lines furnace bottom with sand; builds and repairs clay troughs through which metal runs from taphole to ladle.

CUTTER, HAND VI 6-27.042. Cuts pieces of fabric to be sewed together, from single layers of material or from many layers of material piled up, using hand knife or shears; follows outline marked on cloth or outlines of patterns placed by others.

CUTTER, MACHINE I 6-27.054. Guides an electrically powered cutting machine, which cuts through many layers of fabric, along chalk lines or around pattern

pieces to cut identical parts of fabric; uses an electric drill to make small holes through piled up material to mark location for attaching other parts, or to indicate pieces to be cut out by others; frequently piles material and arranges patterns so as to have the least waste, marking lines around material with chalk.

*CYLINDRICAL-GRINDER OPERATOR I 4-78.511. Grinds external cylindrical, tapered, or conical surfaces with a machine that finishes metal with an accurately controlled abrasive wheel: selects abrasive wheel of appropriate size, shape, and abrasive quality and fastens it on spindle of machine; fastens work between centers of machine; adjusts speeds of rotation of work and abrasive wheel and rate at which wheel is fed into or along work by moving levers; turns on motor, starts machine, and turns handwheel to bring abrasive wheel into contact with work; observes operation of machine; stops machine and measures work; removes work from machine when completed.

CYLINDRICAL-GRINDER OPERATOR II 6-78.521. Finishes cylindrical, tapered, or conical metal surfaces on a cylindrical-grinding machine, performing simple, repetitive, precision-grinding operations, as contrasted to the CYLINDRICAL-GRINDER OPERATOR I who is capable of performing a variety of complicated grinding operations, using the same machine: mounts workpiece in holding device; feeds grinding wheel into workpiece using automatic device or hand wheel, or where automatic machines are used, observes machine operations, frequently tending several machines; removes work when completed; gages cuts, using micrometers, calipers, and verniers. May make simple set-ups, although this frequently done by another worker, usually a JOB SETTER II.

D

*DETAIL ASSEMBLER I 7-03.542. A classification title for jobs which involve the assembly of small and simple aircraft parts (detail assemblies) and equipment, such as ribs, fuel tank parts, and junction boxes.

*DETAIL ASSEMBLER II 5-03.540. A classification title for jobs involving the assembly of precision airplane units, such as hydraulic controls, fuel and oil units, and instruments.

DETAIL-ELECTRICAL ASSEMBLER 7-00.938. Assembles electrical junction boxes for installation on airplanes: measures and cuts insulated wires of a specific size and kind, using a wire cutter or pliers; tapes fittings on the ends of the wires; threads the wires through conduits and solders the ends to a plug; laces together the wires protruding from the open end of the conduit; wires parts, such as switches, meters, light sockets, and terminal panels, using an assembly sketch as a guide; attaches fittings to junction boxes, using nuts and bolts, inserts wires through openings into box and connects them to specific parts; connects wired junction box to testing apparatus and verifies wiring by connecting the box to testing lights.

*DIE ASSEMBLER 4-76.110. Selects correct sized dies for cutting and threading pipe according to plant specifications and maintains die sets in usable condition: changes die sets on the cutting and threading machines, using wrenches; visits machines to examine threads on the pipe end and readjusts the die segments; checks pipe threads with a ring gage; assembles new sets of die segments in the die sets.

*DIE-CASTING-MACHINE OPERATOR II 4-82.920. Makes zinc, aluminum or magnesium alloyed castings of gears, housings, pistons, carburetor bodies, and other machine parts in a die-casting machine: charges furnace with slabs of metal and adds specified quantity of alloy; transfers molten alloy to heated reservoir of the machine with a crane or hand ladle; removes metal fragments from the die surfaces and brushes cavities with a compound to prevent the casting from adhering to the die; regulates valves to heat the furnace, to circulate water through the die, and to force hot metal into the die; moves levers to open and close the two halves of the water-cooled die; hooks completed casting from the die with a steel wire and cools it in water.

*DIE FINISHER 4-76.010. A DIE MAKER II who smooths and finishes the surface of dies after they have been cast, heat-treated, or machined, filing, scraping, grinding the dies and fitting multiple-part dies together.

*DIE GRINDER 4-76.010. A DIE MAKER II who grinds the internal surfaces of dies to accurate dimensions on a precision grinding machine.

*DIE-LAY-OUT MAN I 4-75.140. Marks guide lines and reference points on dies to indicate material to be removed in machining; plates or coats metal surfaces with chalk or paint; scratches lines and points on metal surface with scriber and center punch, using gages, rulers, dividers, and straightedge to locate the positions for the marks; indents location of reference points, such as center points, using a center punch and hammer.

*DIE MAKER II 4-76.010. Specializes in the construction, repair, and maintenance of dies for forging, punching, stamping, or other metal forming work.

*DIE REPAIRMAN 4-76.010. A DIE MAKER II who repairs worn dies by filling worn sections with molten metal and grinding and filing surfaces to their original dimensions.

*DIE SETTER I 4-76.120. Sets up dies in bulldozers, drop hammers, power brakes, power presses, and other forging machines, and adjusts them to normal operation; removes used dies from machine by unscrewing bolts, and cleans scale or dirt from bed with a brush; selects proper dies and lifts them to machine by hand or hoist; bolts upper (male) die to movable block and lower (female) die in approximate center of bed or anvil of machine, using wrenches; lowers male die to a point just above the female die and adjusts the latter until the raised impression on the male fits exactly in the corresponding depression in the female; clamps female die in place by tightening nuts and adjusts length of stroke of male die; operates machine to forge a few trial pieces, inspects them, makes adjustments, and turns machine over to operator.

*DIE SETTER, DROP HAMMER 4-76.120. A DIE SETTER I who sets up and alines the dies in a drop hammer which is used to forge heated metal parts into desired shape.

*DIE-TRY-OUT MAN 4-76.010. A DIE MAKER II who performs the original set-up, try-out, and final adjustment of new dies, and repairs worn dies used in a sheet metal press; bolts upper die in ram and lower die in bed of press; paints upper die one color and lower die another; operates machine through its cycle by running driving motor a few revolutions at a time until upper die descends into lower die; examines dies for mixing of two colors of paint as an indication of high spots; files, grinds, and chisels high spots, indicated by mixing of two paint colors, using hand and power tools, until dies fit; paints template (accurate pattern of finished stamping), and inserts it in machine; brings dies together slowly with template between them, removes template from dies, notes further high spots (recorded by paint rubbed from template to dies), and further grinds, files, chisels, scrapes, and polishes dies.

DIMPLING-MACHINE OPERATOR 6-88.622. A PUNCH-PRESS OPERATOR I who operates a pneumatic power press to depress the edges of holes previously drilled in sheet metal parts so that the heads of rivets, screws, or other fasteners will fit flush with the surface of the metal.

*DISHING-MACHINE OPERATOR 4-86.150. Operates a dishing machine that forms flat, metal plates into concave shapes; sets up convex and concave dies on machine and adjusts dies according to specifications and thickness of plate to be dished; directs the DISHING-MACHINE-OPERATOR HELPER in hoisting and placing the flat metal plate on the anvil die of the machine; starts machine and manipulates metal plate between the stationary and moving dies to secure the desired dish or concavity in the metal plate; checks concave surface with a template and corrects faults by further manipulation in the machine or by striking with a sledge hammer.

*DISSOLVER OPERATOR 6-52.448. Adds specified amounts of benzene, acetone, or nitric acid solution to measured amounts of powdered tetryl explosive and mixes them in an electric mixer until the tetryl is dissolved; starts, stops, and controls the speed of the mixer, being careful to avoid causing an explosion from too sudden starts or overheating the mixture from too rapid an agitation.

*DIVER 5-89.011. Works below the surface of the water, dressed in diving suit and helmet, near construction jobs, to perform such duties as sawing piles, calking leaks in caisson, cutting steel, and inspecting grounds, and around shipways, to remove obstructions and make minor underwater repairs to vessels and docks; descends into the water with the aid of a helper on land, and maintains

communication with helper by tugs on the lifeline or by telephone; removes obstructions from marine railway tracks or from launching ways; levels uneven rails by driving wedges beneath the track with a sledge hammer; inspects the ground, docks, and shipways; loosens and removes launching cradles and sliding ways from the keels of newly launched vessels; makes minor underwater repairs to vessels, such as replacing leaking or missing rivets with bolts, and cleaning debris from intake and discharge strainers; helps set sheet-pilings for cofferdams and calks spaces between the pilings.

*DOPE MIXER I 4-52.411. Operates different types of dynamite mixers, exercising care in regulating mixer temperature to prevent explosions: receives ingredients, such as ammonium nitrate, sodium nitrate, and sulphur, which have previously been weighed out in specified proportions by the DOPE-DRY-HOUSE OPERATOR; charges mixer with ingredients and starts mixer; opens valve to permit cold brine to flow through cooling coils to regulate temperature in the mixture.

*DOPER I 5-16.930. Applies brush coats of clear dope (tautening lacquer) to the fabric covering of airplane structures: places the part (fuselage, wings aileron, elevator, or stabilizer) over a pair of saw horses; applies a coat of clear dope to the fabric, brushing it on with swift, long strokes of a wide brush; draws a length of pinked edge fabric tape, saturated with dope, from a roller; snips the tape with scissors and lays it over the stitching that secures the fabric in place; smooths out wrinkles by hand; places celluloid drain grommets on trailing edges of wings; applies a second brush coat of dope over the covering.

*DRAFTSMAN, AERONAUTICAL 0-48.04. Prepares clear, complete, and accurate working plans and detail drawings, from rough or detailed sketches or notes for the construction of aircraft and auxiliary air transportation equipment, according to the specified dimensions: makes final sketch of the proposed drawing, checking dimensions of parts, materials to be used, the relation of one part to another, and the relation of the various parts to the whole structure; makes any adjustments or changes necessary or desired.

*DRAFTSMAN, MARINE 0-48.16. Performs duties of DRAFTSMAN but specializes in making drawings of the structural and mechanical features of docks, ships, and other marine structures and equipment; works from general design drawings and notes made by ARCHITECT, MARINE or MARINE ENGINEER.

*DRAFTSMAN, MECHANICAL 0-48.18. Performs duties of DRAFTSMAN, but specializes in making rough drafting sketches of proposed mechanical devices, and then drawing necessary details on the sketch; prepares accurate scale drawings of parts or machines from specifications.

*DRAW-BENCH OPERATOR II 4-88.314. Forms flat sheet-metal strips into tubular, channel, and angular shapes by operating a draw bench: selects, sets up, and alines appropriate dies and gripping jaws, and bolts them in place on bed of press; trims, folds, and pinches ends of metal strips to be formed so that they will be more easily fed through the dies by the gripping jaws, using tools, such as pliers, hammers, and bench vises; places metal strips between guides and closes gripping jaws and dies over front end; when forming tubing, superimposes an internal die (mandrel) on the metal strips and guides both through the dies that form the metal by forcing it against the mandrel; starts machine to actuate the gripping jaws that grasp and force the metal through the dies, forming it to the desired shape; loosens dies and gripping jaws and removes and inspects the formed piece, using instruments, such as micrometers and calipers; clears dies by directing compressed air over them. May set up and aline straightening dies to correct undesired curvatures found in the drawn metal.

*DRAW-CUT-SHAPER OPERATOR 4-78.063. Adjusts a complex shaping machine and performs difficult machining operations which frequently involve a three-directional motion of the cutting tool: studies blueprints to determine method of machining propellers or other irregularly-shaped parts; directs other workers in hoisting, positioning, and clamping part in place on the machine bed; inserts suitable tool in the machine and sets up machine by making various complex electrical and mechanical adjustments to accurately control the direction and depth of the cut, synchronizing the possible motions of the cutting tool so that it accomplishes the desired shaping operation; starts the machine with a switch and, as the work progresses, checks dimensions with precision instruments; stops machine at end of operation or at any sign of malfunctioning.

*DRAW-PRESS ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Sets up and regulates the mechanism of a battery of heavy power presses that lengthen shell cases or bullet jackets by stretching them through close fitting dies; polishes dies and punches, using files, emery cloth, hones, and an electrically driven lapping polisher; replaces and removes punches and dies; varies the stroke of the press and adjusts the feeding mechanisms.

*DRIER OPERATOR I 6-52.426. Dries smokeless powder with hot air and water to remove solvents, such as acetone, ether, and alcohol: directs HANDLERS V in placing powder in dry-house for preliminary air-dry treatment; regulates heat control to maintain temperature in dry-house within specified limits; directs transfer of powder to water dry-house and charging of water drier; turns valves to fill tank with heated water and to admit steam to tank jacket; empties water from tank and directs removal of powder to continuous air dry-house in cars equipped with screen-covered outlets; connects ducts of hot-air system with outlets in cars; starts blower and adjusts heat regulator to force hot air through the powder.

DRILLER VI 6-84.150. Drills, reams, and countersinks rivet holes in heavy plates, beams, angles, or other parts of a ship according to lay-out marks, using a hand or wheeled portable electric or pneumatic drill: holds drill or attaches it to workpiece with special fixtures; sharpens drills on power-driven grinding wheel; may thread holes, using a power-driven or a hand-operated tap; may erect scaffolding necessary to reach inaccessible places.

*DROP-HAMMER OPERATOR IV 4-86.170. Shapes sheet metal, aluminum, and aluminum and magnesium alloys with a drop hammer: cleans die surfaces with a cloth and air hose and sprays oil on the die and metal to lessen friction during shaping process; positions metal on die and shapes it by mechanically raising the hammer and allowing it to fall, varying the speed and height of the hammer's descent and the number of blows according to the kind and thickness of the metal and the nature of the drawing operation; checks dimensions of the shaped metal according to blueprints, using a steel rule and template; smooths wrinkles by pounding them out with hand hammers and mallets; may position rubber pads, or various curved strips of plywood (draw rings) on the metal to facilitate shaping; removes rubber pads or draw rings as the shaping progresses. May be designated according to proficiency acquired, as drop hammer operator, first class; drop hammer operator, second class.

*DYNAMIC BALANCER 4-99.411. Rotates a part such as rotor or armature at high speed in a machine to see if piece is in balance; places piece in supports of machine and brings a high speed rotating wheel down onto piece to rotate it; looks for any vibration and also marks point of vibration by holding red pencil against rotating piece; stops machine and inserts wedge-shaped weights to bring piece into balance.

DYNAMOMETER TESTER, MOTOR 7-02.713. Tests, adjusts, and does minor repairs on complete motors before they are mounted in the chassis: lifts motor to test block with hoist, alines it properly, and bolts it into place; bolts coupling between dynamometer and motor shafts; starts motor and runs it under its own power to drive dynamometer; reads gages on switchboard to observe power developed at a certain speed, compression, and other specifications for motor; reverses drive by cutting off motor and throwing switches to cause dynamometer to drive the motor; reads gages to observe power necessary to turn motor; adjusts carburetor, clearance between tappets and valves, and performs precise tune-up operations; listens for noises indicating some irregularity (may use an instrument similar to a stethoscope); passes motor to assembly line or rejects it for return and disassembly. Uses acutely developed sense of hearing, plus ability to diagnose unusual sounds, such as piston slap, knocks, taps, and gear grinds, plus experience to interpret readings on instrument panel of dynamometer.

E

*ELECTRIC-CONDUIT INSTALLER 7-03.580. A SUBASSEMBLY INSTALLER II. Installs electric and radio wiring conduits in airplanes: bolts and rivets conduit supports to airplane structure, using tools, such as screw drivers, electric drills, and portable riveting hammers; runs conduits over and through supports, and screws threaded ends of conduits into junction boxes, securing them in place with lock nuts; bolts lengths of cable (bonding strips) across the insulated joints in the airplane structure to distribute static electricity, thus preventing fires, and eliminating radio interference.

*ELECTRIC-MOTOR ANALYST 5-83.431. Determines, by electrical tests and visual inspection, repairs and replacements to be made to electric motors: dismantles motor by loosening bolts and screws and cutting connecting wires; examines parts for wear and damage; tests for grounded wires in armature and stator with testing device; determines repairs needed; distributes parts to other workers for repairing or replacing.

*ELECTRIC-MOTOR ASSEMBLER 6-99.166. Puts together small electric motors, performing any or all of the following duties: attaches such fixtures as brush holders and wire clips to electric-motor field leads, skinning the ends of the wires and soldering or clamping fixtures to them; reams bearing holes in end plates of gear cases and motor housings with a hand reamer; bolts field windings into motor housings, using fixtures to hold them in correct position until bolts are in place; secures brush holders in housing, using a fixture that forces holder into housing mechanically; fastens fans and gears on armature shaft with nuts and lock washers, and places armature shaft in its bearings; solders or screws electrical leads to switch and cord assembly; greases assembled motors and gears by hand or with a grease gun; inspects assembled motor to be sure that moving parts turn freely; uses hand tools such as screw driver, wrenches, pliers, and soldering iron, and special fixtures for holding parts in position during assembly.

*ELECTRIC-MOTOR ASSEMBLER AND TESTER 5-83.432. Assembles repaired electric motors and tests them to make sure that performance corresponds with ratings on motors' name plates: (1) Assembles motor: cleans parts with gasoline; fits parts together, insuring that each part fits and functions properly; replaces badly damaged parts; performs handwork, such as filing, sandpapering, or hammering, to correct defects in parts that do not function properly; (2) tests motor: mounts motor in testing frame; makes connections between motor and testing devices; starts motor and observes meter and gage readings; makes necessary adjustments to make motor conform with rated performance.

*ELECTRIC-MOTOR REPAIRMAN 5-83.433. Repairs electric motors, generators, and accessory equipment, such as starting devices and switches, performing various duties, such as removing defective motors from equipment, winding armatures and field coils, testing armatures, refacing commutators, and installing repaired motors. May repair transformers.

*ELECTRIC-TRY-OUT MAN 7-83.421. Tests the electrical system on a motor vehicle to detect and repair any open or short circuits: turns on all lights and electrical devices; observes action of ammeter and whether fuses blow; finds and repairs short circuits; searches wiring for broken wires or loose connections causing open circuits. Uses hand tools, such as screw driver and pliers.

*ELECTRICAL ADJUSTER 5-00.933. Adjusts the action of relay switches, mercury switches, and rheostats used in scientific instruments to meet prescribed performance standards: connects instrument to electrical testing devices and takes reading of meters, such as voltmeters and ammeters; makes adjustments with screw drivers and pliers to alter the switch action in accordance with meter readings; varies electrical characteristics of instruments by changing the lengths of wires and varying the values of shunts, resistance coils, and other component parts.

*ELECTRICAL ASSEMBLER II 6-78.634. Fits together the component mechanical parts of generators, motors, complicated switches, special circuit breakers, and switch gear and control apparatus, adjusting parts as required; works from complicated blueprints and must be able to use all machinists' hand tools, such as scrapers, chisels, files, and measuring devices.

*ELECTRICAL INSPECTOR II 4-97.930. Inspects and tests installed aircraft electrical equipment: verifies wiring in fuselage and wings with blueprints; examines condition of wires, measuring curvature of conduit bends with scales and protractors; inspects installations, such as lights, flap and landing gear motors, and conduit boxes; tests bonding and wiring in airplanes with instruments.

*ELECTRICAL REPAIRMAN 4-97.420. Keeps electrical equipment, such as wiring, motors, switches, switchboards, and electrical mechanisms in good repair and operating condition: performs various duties, such as replacing defective wiring and making connections to new electrical installations, replacing burnt out fuses, replacing small parts on motors, cleaning and oiling motors, and repairing

electrical fixtures. May make new installations of fixtures, motors, and other electrical equipment. May rewind and make major repairs to motors. May repair elevators.

*ELECTRICAL TESTER I 5-53.360. Carries out prescribed tests on all types of electric power equipment, including relay systems and other protective apparatus used in the production of electricity, using various types of electric testing equipment.

*ELECTRICAL TESTER II 4-98.010. Tests resistance of circuits of various parts, subassemblies, and finally assembled radio receiving set to determine whether these parts and the set function according to established standards; reads meters or observes and listens to signals in testing a part; makes final broadcasting test under actual broadcasting conditions.

*ELECTRICIAN 4-97.010. Lays out, assembles, installs, and tests electrical fixtures, apparatus, control equipment, and wiring used in the alarm, radio, communication, light and power systems of buildings: plans proposed installation from blueprints, sketches, or specifications; secures panel boards, switch boxes, pull boxes and other concealed or recessed equipment to the frame of the structure; measures, cuts, threads, bends, assembles and installs conduit which connects the various outlets, panels, and boxes, using tools such as hacksaw, pipe benders, and threading tool; draws wires through conduit; splices wires by removing (skinning) insulation from conductors, scraping conductors clean with a knife or cutting pliers, twisting conductors together, soldering the connection, and applying several layers of friction tape; installs and connects equipment to wiring system; tests circuits for continuity and proper connections, using a battery and buzzer or light bulb.

*ELECTRICIAN, AIRCRAFT RADIO 5-83.447. A RADIO MECHANIC II who installs, tests, adjusts and repairs radio sending and receiving equipment; mounts radio sets in airplane, bolting and fastening them in place; connects sets to power sources and antennae; tests, adjusts and repairs sets.

*ELECTRICIAN, AIRPLANE 4-97.910. Installs electrical wiring, fixtures, and switches in aircraft; cuts insulated wire to length according to blueprint and installs it in conduits attached to the aircraft structure; scrapes ends of wire and solders them to their respective terminals; installs wing tip and taillights, interior light fittings, and dashlights; hooks up and tests all electrical equipment, and tests aircraft instruments operated by electricity with electrical gages.

*ELECTRICIAN, AUTOMOTIVE 5-81.420. Repairs and installs ignition systems, starters, coils, panel instruments, wiring, and other electrical system and equipment on automobiles: performs duties, such as diagnosing trouble by visual inspection or by use of testing devices, adjusting timing, adjusting distributor breaker-point gaps with thickness gage, replacing defective parts on starters, generators, and distributors, and replacing defective ignition and lighting wires. May test and repair generators. May repair and adjust carburetors.

*ELECTRICIAN, FIELD SERVICE 4-97.910. An ELECTRICIAN, AIRPLANE who tests, adjusts, and repairs airplane instruments, wiring, and electrical accessories as a final check preparatory to the test flights of airplanes. May test and repair airplane radio sets.

*ELECTRICIAN, MACHINE SHOP 4-97.410. Maintains plant wiring and electrical equipment; installs required electrical wiring in machine shop products.

*ELECTRICIAN, POWER-HOUSE 4-97.510. Repairs electrical equipment, such as generators, rotary converters, and switchboards and maintains all electrical equipment within the power-house in perfect operating condition, working from wiring diagrams and using such tools as wrenches, pliers, pocket knives, and screw drivers.

*ELECTRICIAN, RADIO I 5-83.445. Inspects, adjusts and repairs high-powered stationary and mobile radio transmitting equipment: adjusts controls and tests frequencies of transmitters using a frequency meter; listens to radio range station at frequent intervals to discover any irregularities in its performance; periodically operates emergency truck transmitter to insure its readiness for immediate use; examines faulty equipment and makes minor repairs, such as

replacing condensers, switches, and tubes; takes defective equipment to repair shop when dismantling is required to make necessary repairs as indicated by examination with testing instruments; makes similar repairs to local intercommunications telephone system.

*ELECTRICIAN, SHIP 4-97.210. Installs electric wiring, fixtures and equipment for all electrical services on board a ship, according to plans and drawings; installs electrical equipment, such as electric motors, generators, electric pumps, refrigerating machinery, laundry machinery, blowers, fire detectors, electric gages, recorders, clocks, bells, and telephones; installs all wiring and locates and repairs defects in wiring; repairs such equipment as motors, searchlights and cooking ranges.

*ELECTRICIAN, SHOP 4-97.220. Assembles electrical equipment in the shop of a shipyard; also repairs and tests electrical parts and equipment.

*ELECTRICIAN, YARD 4-97.230. Maintains electrical units in a shipyard in good working order; may also install new electrical systems, including wiring, insulation and connections when required to do so, in accordance with the electrical code.

*ENDS ASSEMBLER 7-03.542. A DETAIL ASSEMBLER I. Fits and rivets tank ends to airplane fuel tanks; marks rivet holes to be drilled in end flanges of tanks; fits and clamps tank ends inside end flanges of tanks; clinches ends in place by hammering tank shell flanges over ends, using mallets and dolly blocks; drills rivet holes in tank flanges to correspond with holes in tank ends, guided by markings and using a portable electric drill; rivets ends in place, aided by another worker who bucks-up the rivets.

*ENGINE-INSTALLATION ASSEMBLER 5-03.572. A MAJOR-ASSEMBLY INSTALLER. Puts together and installs partially assembled aircraft engines according to blueprint specifications; lifts engine with a chain hoist into an engine mount bolted in portable engine-mount stand; attaches engine parts, such as the carburetors, generators, fuel and oil pumps, spark plugs, magnetos, and electrical equipment, bolting and clamping them as required; hoists engine and attached mount to its proper position in the fuselage or wing, and bolts the mount to the firewall of the airplane; connects fuel and oil lines, pressure gages, engine control rods, and instrument lines on the engine to their corresponding fittings on the firewall by clamping, screwing, and attaching gaskets and insulation as required; strings wires to engine electrical equipment according to wiring diagrams. Usually adjusts engine controls after engine is installed. May uncrate engine and parts and clean them with solvent-saturated rags and an air hose prior to fastening them in the mount. May test and adjust the various parts and the assembled engine prior to installation. May install propellers.

*ENGINE-LATHE OPERATOR I 4-78.011. Shapes external and internal cylindrical surfaces of metal objects with a lathe on which the rotations of the work and the feeding of the tool may be accomplished mechanically; clamps or bolts work on spindle, using faceplate or chuck, or fastens work between centers; sharpens tools on a grinding lathe and clamps them in place; shifts belts or moves levers to select appropriate speeds of rotation and tool feed; engages an accurately made lead screw and adjusts its rate of rotation to a definite ratio with that of spindle when preparing to cut threads, turns on motor and starts machine; turns handwheels to bring tools into contact with work; engages automatic feed or continues to turn handwheels to feed tools into or along work. May be classified according to size of machine, as small, medium, and large.

*ENGINE-LATHE OPERATOR II 6-78.011. Shapes external and internal cylindrical metal surfaces with an engine lathe, performing simple repetitive operations, as contrasted to the ENGINE-LATHE OPERATOR I who performs a variety of complicated cutting operations, using the same type machine; fastens workpiece between chuck and headpiece; starts machine and coolant flow; feeds cutting tool into workpiece by turning hand wheel or by shifting feed-control levers; removes work when completed; gages cut with micrometers, calipers, and verniers; may also be required to make simple set-ups, although this is usually done by a JOB SETTER II.

*ENGINE TESTER 5-80.350. Checks performance of new or overhauled airplane engines by operating them under controlled conditions, measuring factors, such as fuel consumption and manifold pressure, and interpreting the data thus obtained; mounts engine on test stand using chain hoist; connects oil and fuel lines,

instruments, controls, and accessories; connects propeller or dynamometer to crankshaft; starts engine and operates it for a specified period of time at each of several different speeds; reads and records speed, temperature, fuel level, oil pressure, manifold pressure, and other data; calculates performance of engine at different speeds, using slide rule, standard formulae and curves, and the test data; makes minor repairs or adjustments required to make engine meet specifications.

*ENGINEERING CLERK 1-35.01. Performs any one or a combination of the following duties in the preparation of airplane parts lists, operation and maintenance manuals, and the production specifications manuals: compiles general lists of airplane parts from blueprints; prepares detailed lists of structural elements to be produced for airplane major assemblies, subassemblies, and for small parts; compiles operation and maintenance manuals describing maintenance procedures, such as the lubrication of parts and the charging of batteries; compiles lists of specifications for all components of airplanes, transcribing blueprint data into compact paragraphs.

EXTERNAL-GRINDER OPERATOR I 6-78.513. Operates an automatic or semiautomatic machine that rough-grinds or finish-grinds the bearing surfaces on such parts as camshafts and crankshafts: lifts part by hand or hoist into arbor or other fixture which holds part in alinement with cutting tools; moves lever to clamp part rigidly in place in fixture; starts grinding wheels; may regulate pressure exerted on part by grinding wheel, by moving lever or hand guide; stops machine when grinding is complete and unclamps piece; lifts piece by hand or hoist onto pile or conveyor. Checks accuracy of work by using precision gages measuring to 0.0003 inch. Resurfaces grinding wheel by holding special tool against surface to cut worn surface to a smooth finish.

*EXTRUDER OPERATOR II 4-88.991. Sets up and operates a large hydraulic extrusion press to shape seamless tubing and rods of round, flat, or irregular cross section from hot billets: selects proper die, billet container, mandrel, and extrusion head from stockroom and secures them in their proper places by tightening bolts with wrench; either directs a HEATER III in heating the billets or determines when billets are heated to proper temperature by observing their color through furnace window; either removes hot billet from furnace using long-handled tongs, sliding it along trough to bed of press and dropping it into billet container or directs a FORKMAN to do this work; directs OILER VII to swing upsetting device into position above billet container and depresses pedal to lower ram on upsetting device, forcing the billet to spread until it fits snugly in billet container; moves hand and foot levers to cause ram to descend, regulating the speed of extrusion to prevent tears in the metal, causing by a too rapid push, and adherence of the metal to the walls of the container as the result of a too sluggish extrusion; raises ram to top of stroke and lowers a cut-off device, placed in position by OILER VII, to shear off residue of billet (shim) and free the extruded tube from the die; keeps written record of the number of tubes of each size formed, and the kind of metal extruded.

*EXTRUSION-PRESS OPERATOR II 6-99.901. Operates an extrusion press to form carbon rods for use in such electrical equipment as commutator brushes, resistors, and switches: selects dies in accordance with size and shape of rods to be extruded and screws them into the press chamber; loads plastic carbon into hopper or chamber of press; operates controls to cause hydraulic ram to advance, forcing carbon through dies to form rods; cuts rods as they are extruded from the dies.

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*FABRIC WORKER I 5-03.030. Lays out, cuts, and sews airplane fabric to form covering for wings, fuselage, and tail surfaces of aircraft: lays fabric on surface of workbench; draws outline of cover, using a template as a guide, with chalk; cuts material on chalk line with scissors or cutting machine; sews fabric with a lap seam on a sewing machine to form an envelope that will fit the structure to be covered.

*FILER, MACHINE 4-78.291. Shapes dies and machine parts of intricate shape on a precision filing and sawing machine: clamps part on machine, fastens appropriate saw blade or file in reciprocating frame of machine, and tilts table to required angle; starts, stops and controls machine, and feeds work against saw or file by turning crank.

*FINAL ASSEMBLER I 5-03.572. A MAJOR-ASSEMBLY INSTALLER. Joins together major assembly units to form complete airplanes: hoists into place and alines in a fixture airplane assemblies, such as wings, tails and fuselage sections, using a jack or chain hoist; fits and bolts sections together, cutting or filing away excess metal to secure a flush fit and drilling bolt holes as necessary; installs hydraulic and mechanical systems that operate the engine and flying controls, instruments, bomb-bay doors, retractable landing-gears and other working parts; tightens cables by turning turnbuckles so that the controls are sensitive, testing the strain on the cables with tensionmeters and verifying the angles of movement with protractors; bolts landing gears in place and connects them to the hydraulic controls; installs fuel systems. Usually disassembles airplanes into major assemblies, such as wings, tails and fuselages for shipping.

*FINAL ASSEMBLER IV 7-03.562. A SUBASSEMBLY INSTALLER II. Installs in and on airplane fuselages such parts as windshields, cowling, doors, seats, tables, and other interior fixtures: fits sheet metal, plastic and fabric in place, trimming away the excess with files, snips, scissors, and knives; drills holes in parts and attaches them in place with bolts, rivets, and retaining strips; finishes parts as necessary with hand tools.

*FINAL-ASSEMBLY INSPECTOR 5-03.812. Inspects completed airplanes for defects of assembly and operation: operates controls to ascertain that they are sensitive, properly installed, and are not excessively slack; shakes and pounds with his hands major assemblies, such as wings and tails, to detect loose splicing; inspects alinement of airplane members, using plumb bobs, sight levels, scales, and other devices; examines miscellaneous installations, such as tires, oil and gasoline lines, instruments armament, wiring, and lights; orders disassembly of unsatisfactory parts and determines the cause of the defect. This worker does not inspect motors, radio, or electric installations.

*FINAL INSPECTOR III 6-93.771. Inspects completed firearms for proper action, rejecting any guns that do not work properly.

FINAL INSPECTOR IV 6-93.772. Inspects stocks and hand grips on guns for proper finish.

*FINAL TESTER II 4-99.432. Runs the final test on complicated or large electrical apparatus, such as generators, motors, complicated switches, special circuit breakers, switch gear, and control apparatus to make sure that the equipment conforms to specifications electrically and mechanically, and that it meets performance requirements: makes own test set-ups and uses various electrical measuring devices, such as pyrometers, resistance bridges, galvanometers, and variometers and mechanical measuring devices, such as micrometers, verniers, and torsion meters; records results of tests and may make recommendations as to how defects may be rectified. A broad knowledge of electrical equipment and their functions is required. May specialize in the testing of one kind of equipment, such as motor, generator, or switch gear.

*FIREMAN, STATIONARY BOILER 7-70.040. Fires stationary boilers used in a factory, power plant, or other establishment to generate power or to supply steam for industrial processes.

*FIT-UP MAN 4-83.300. Assembles and temporarily fits together in the shop, the various parts of boilers, tanks, vats, and other vessels preparatory to final assembly by BOILERMAKER; bolts or tack welds seams of boiler shells, or other parts; hammers out or files irregularities in parts so that they will fit together neatly and snugly.

*FITTING MAN 5-03.554. A SUBASSEMBLER III. Works singly or as a member of a group who temporarily bolt, rivet, or tack-weld together parts of aircraft, such as motor mounts and cockpit cowlings prior to permanently uniting them: ascertains from blueprints the most advantageous system of assembly; examines all supplementary parts for defects, using squares, micrometers, and rules to test the measurements; places parts in a jig or fixture to insure the proper relative fit of the piece at all points; makes adjustments, using mallets and files to improve the juxtaposition of parts; when all pieces fit satisfactorily, either bolts them together or temporarily welds them; reshapes and straightens fittings warped by the heat of the welding process by measuring the amount of deformation, using micrometers, calipers, squares, and rules, and hammering and bending parts to the desired shape. May fit and assemble parts without the aid of jigs or fixtures

when building equipment for new aircraft types.

*FLAME-ANNEALING-MACHINE ADJUSTER 6-87.142. Keeps in operating repair and adjustment a battery of machines that soften (anneal) the side walls of brass shell cases for further processing: ascertains if machines are functioning properly by noting the color of the discharged product (indicative of temperature), by noting the area of dullness (indicative of flame coverage), and by squeezing together an annealed case between the fingers and noting the pressure required (indicative of too much or too little annealing), and makes any adjustments necessary; dismantles the machine to replace worn or broken parts; lubricates the machine; trains new machine operators. May mechanically test the hardness of an annealed product with a testing machine.

*FLAME-CUTTER OPERATOR 6-85.215. Sets up and operates gas-burning (cutting) equipment that uses acetylene, thermalene, propane or other appropriate gas to perform metal-cutting operations: the object cut and the purpose of cutting varies in different establishments, such as burning sprues from castings in a foundry, cutting up scrap metal in a scrap-metal yard, or trimming girders or other structural shapes on a project; assembles cutting equipment by connecting torch to hose and hose to regulator on appropriate gas tanks; screws proper tip into torch nozzle, lights torch, and regulates the flow of gases to obtain a suitable cutting flame by manipulating small valves on handle of torch; holds torch to metal and guides torch along the desired cutting line as the flame cuts a narrow channel through the metal. May interpret blueprints or sketches and lay out (mark) cutting lines on the metal, using scales, dividers, and other instruments. May charge gas generator by renewing gas-generating chemicals and manipulating valves and other mechanism on tanks. Frequently the worker is familiar with only one type of cutting operation, such as cutting scrap metal, and is not transferable to other types of cutting. May weld; may operate a flame-cutting machine.

*FLAME-CUTTING-MACHINE OPERATOR 6-85.240. Cuts steel plate into various designs and shapes, using different types of hand guided or automatic flame-cutting machines according to type of cutting to be done: positions guide wheels of machine against a template, or traces course of cutting torch with a pantograph to produce desired cuts; adjusts burner tip of cutting torch, regulating flame and speed of machine according to thickness of metal. The flame-cutting machines use acetylene, thermalene, propane or other appropriate gas to perform metal-cutting operations.

*FLANGE-FACING-MACHINE OPERATOR 6-78.293. Finishes the face of pipe flanges to provide a suitable surface for gaskets using a semiautomatic flange-facing machine: fastens pipe on work table with metal clamps or special holding fixtures and lifts flange-facing machine onto the end of the pipe; fixes the machine to the pipe by pulling a lever that sets an arrangement of expanding brakes against the inner pipe surface; inserts cutting tool in machine head and measures depth of cut with calipers; makes necessary adjustments to the tool using wrenches; starts machine and faces entire surface of flange; stops machine to advance tool for new cut and repeats performance until flange is properly faced.

*FLANGE TURNER II 4-88.743. Performs any or all machine and hand operations necessary to form flanges on steel plates, according to blueprint specifications: heats large plate in a furnace preliminary to hand shaping; positions hot plate on a bed, securing it with steel pegs; places various steel forms on the plate according to markings of proposed flange and manipulates a swinging ram to hammer the desired flange into the hot plate; checks the finished bend with templates; forms flanges in small plates with hand hammers. Operates a flanging press to form flanges thar do not require hand shaping. May draw the steel plates through a series of rollers to bend the plates preliminary to hand shaping.

*FLANGING-MACHINE OPERATOR IV 6-94.224. Sets up and operates a sheet-metal former to flange sheet-metal aircraft parts: changes and adjusts die set according to type of flange to be formed; oils part to be flanged and inserts part in machine; starts machine to actuate hammer that forms flange, guiding part through machine; checks shaped part for conformity with template; straightens warps and bends caused by forming operation with a wooden mallet.

*FLANGING-PRESS OPERATOR 6-88.742. Operates a flanging press to form flanges on heavy steel plates, for such uses as boiler heads, disk wheels, crankcase pans, ship plate, and gear case housings; places plate to be flanged on anvil of flanging

machine with layout mark, indicating width of flange, alined with edge of anvil; clamps head in position on anvil; opens valve on air or hydraulic hammer to force hammer against the edge of the plate, bending the flange part way down; releases the hammer and clamps, and changes position of plate for another bending operation; continues bending of flange, working around the plate until the flange is bent to the correct angle, as tested with a template. May select and set up dies in anvil of machine, which permit bending of plate to desired angle without use of template.

*FLASK MAKER, METAL 6-82.620. Constructs metal flasks, open-ended frameworks used to contain sand when making molds for castings; assembles and fastens together component parts of flasks, using a wrench to tighten bolts, tap screws, and rods, which hold various parts. May cut and shape required stock, using various metalworking machines, such as drill press, band saw, and shaper.

*FLOOR ASSEMBLER 6-78.632. Fits and fastens metal parts together with bolts, screws, or rivets, to assemble machine products partially or completely. May remove small quantities of metal by hand with files and scrapers to produce accurate fits between parts. May melt bearing metal and pour it into bearings of moving parts.

*FOREMAN (air trans.) 5-95.030. Supervises a group of workmen engaged in the operation, maintenance, and repair of transport aircraft; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (aircraft mfg.) 5-92.411. Supervises a group of workmen engaged in the manufacture of aircraft and airplane parts; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (alum. prod.) 5-92.578. Supervises a group of workmen engaged in the manufacture of aluminum products; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (ammunition) 5-91.891. Supervises a group of workmen engaged in the manufacture of ammunition and related products; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (elec. equip.) 5-92.601. Supervises a group of workmen engaged in the manufacture of electrical machinery, appliances, and supplies; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (explosives) 5-91.872. Supervises a group of workmen engaged in the manufacture of explosives; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (firearms) 5-92.392. Supervises a group of workmen engaged in the manufacture of small firearms; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (forging) 5-92.391. Supervises a group of workmen engaged in forging; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (found.) 5-92.311. Supervises a group of workmen engaged in foundry operations; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (inst. & app.) 5-92.903. Supervises a group of workmen engaged in the manufacture of instruments and apparatus for professional, scientific, commercial, and industrial purposes, including sighting and fire-control equipment; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (iron and steel) 5-92.301. Supervises a group of workmen engaged in the processing of iron and steel; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (light, heat, & power) 5-95.320. Supervises a group of workmen engaged in the generation, transmission, and distribution of electricity and the distribution of manufactured and natural heating and illuminating gas; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (loco. & car bldg. & rep.) 5-92.401. Supervises a group of workmen engaged in the building and repairing of railroad cars and locomotives; assigns duties to workers and inspects their work for quality and quantity. May assist

subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (mach. shop) 5-92.768. Supervises a group of workmen engaged in machine shop operations; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (mach. tool & access.) 5-92.732. Supervises a group of workmen engaged in the manufacture of power-driven machinery and accessories for metalworking machines; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (motor trans.) 5-95.020. Supervises a group of workmen engaged in providing public motor vehicle transportation facilities for freight and passenger traffic; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (nonfer. metal alloys & prod.) 5-92.591. Supervises a group of workmen engaged in the processing of nonferrous metal alloys and their products; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (optical goods) 5-92.901. Supervises a group of workmen engaged in the manufacture of optical goods; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (petrol. refin.) 5-91.901. Supervises a group of workmen engaged in the refining of crude petroleum; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (photo. apparatus) 5-92.904. Supervises a group of workmen engaged in the manufacture of photographic apparatus and materials; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable

degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (radio mfg.) 5-92.621. Supervises a group of workmen engaged in the manufacture of radio equipment; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (r. r. trans.) 5-95.040. Supervises a group of workmen engaged in the operation, maintenance, and running repairs of railroads and railroad equipment; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (sheet metal) 5-92.592. Supervises a group of workmen engaged in the processing of sheet metal; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (ship & boat bldg. & rep.) 5-92.422. Supervises a group of workmen engaged in the construction and repair of boats and shops; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (tanks) 5-92.433. Supervises a group of workmen engaged in the manufacture of tanks; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (tel. & tel.) 5-95.220. Supervises a group of workmen engaged in the maintenance and operation of telegraph and telephone communication services; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FOREMAN (wire) 5-92.331. Supervises a group of workmen engaged in the manufacture of wire; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

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*FOREMAN (woodworking) 5-91.501. Supervises a group of workmen engaged in woodworking operations; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Performs duties not necessarily requiring a comparable degree of skill or background in this trade, as the workers supervised are usually engaged in several occupations. Must possess a detailed knowledge of the process involved.

*FORM BUILDER I 5-17.060. Builds forms, fixtures, jigs, or templates of wood or metal for use as guides or standards by other workers in mass production of mechanical conveyances, such as automobiles and airplanes; studies blueprint of part for which template, jig, or other fixture is to be built; lays out, cuts, and assembles component pieces of wood or metal; checks and measures finished assembly against blueprint.

*FORMING-MACHINE OPERATOR IV 6-94.215. Forms sheet metal into tubular or other uniform curved shapes: adjusts forming rolls of forming machine by loosening bolts, moving roll to desired position, and tightening bolts; inserts sheet metal between two feed rolls that force the metal against the forming rolls, forming the flat sheet into the desired shape, as shown on the blueprints from which he works.

*FORMING-PRESS ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Keeps in operating adjustment a battery of toggle and crank presses that form cartridge clips and clip springs from stock; replaces worn or broken parts; instructs new operators.

*FORMING-PRESS OPERATOR I 6-88.627. Operates a power press that trims, punches, shapes, crimps, rivets, or presses together light metal stock between appropriate dies to form metal articles: loads machine by placing piece on lower die exactly according to jig or guides built into die; starts machine causing upper die to advance and exert pressure on piece in lower die, thus performing desired operation. May remove piece as upper die raises or piece may be ejected from machine automatically. May set controls for continuous operation and insert and remove pieces during upward stroke of ram. May set and aline dies.

*FORMING-PRESS OPERATOR II 4-88.627. Shapes sheet-metal parts of aircraft, such as small wing and structural elements, fuselage bulkheads, and fairing, in a forming press; studies blueprints to ascertain type and size of die; measures die using rulers, calipers, and squares to make sure it is of the correct size and contour; bolts upper and lower halves of the die to the ram and bed of the press respectively, using wrenches; positions metal sheet over lower die and presses a button or operates a treadle to bring the ram down and form the piece; frequently measures stampings to make sure the press is operating satisfactorily; lubricates die and sections of the sheet-metal subject to excessive deformation in the die using a brush or swab.

*FRAME ASSEMBLER III 6-78.631. Assembles machinery frames which have been shipped in a knocked-down condition from the factory to facilitate shipment, basing assembly on his knowledge of the machines or working from blueprints and screwing bolts in place, using such tools as wrenches, screw drivers, hammers.

*FUEL-AND-OIL-UNITS ASSEMBLER 5-03.540. A DETAIL ASSEMBLER II. Inspects, assembles and tests pumps, valves, and other parts of the fuel systems of airplanes to insure the efficient functioning of these parts: examines units for conformity to blueprint specifications and for defects by moving levers and valves with the fingers; replaces faulty parts using hand tools, such as pliers and wrenches; measures parts with calipers, verniers, and micrometers to test them for conformity to specified tolerances; puts together parts with the aid of a jig or fixture to aline and hold parts while bolting, screwing, or otherwise fastening them together; tests assembled units for leaks by subjecting them to hydraulic and pneumatic pressures using a small hand pump; adjusts units with hand tools to improve their operating performance.

*FUEL-SYSTEM INSTALLER 5-03.572. A MAJOR-ASSEMBLY INSTALLER. Installs airplane fuel systems: drills holes in airplane frames and bolts or screws mountings and brackets in place; mounts tanks and lines, bending lines as necessary by hand to secure a perfect fit; connects the parts of the system and tests it by operation; examines and adjusts fuel system controls and instruments.

*FURNACE TENDER, COKE OR COAL 4-91.571. Fires, charges, tends, and repairs pit furnace in which small quantities of various metals or alloys are melted to be used in making castings: kindles and fuels coke or coal fire in furnace; fills crucible with metal (pig or scrap), weighing constituent amounts if alloy is made; attaches tongs to crucible and lowers it into furnace by hand or with hoist; banks fire around crucible and observes melting, judging by color of molten metal or using pyrometer to determine when metal is ready for pouring; removes crucibles from furnace; may assist in pouring molten metal into molds; cleans ashes from furnace and patches furnace lining with fire clay as needed; performs other duties, such as screening molding sand, breaking molds, cleaning castings.

*FURNACE TENDER, OIL OR GAS 4-91.571. Fires and charges an oil-fired or gas-fired pit furnace in which various metals or alloys are melted to be used in making castings: ignites oil or gas burner and regulates valves on fuel and air lines to heat furnace to pouring temperature of metal; fills crucibles with pig or scrap metal; attaches tongs to crucibles and lowers them into furnace by hand or with a hoist; removes crucibles from furnace when molten metal is at proper pouring temperature, using a pyrometer or judging by the color of the metal; may transport crucible and pour molten metal into molds to make castings.

*FURNACEMAN XI 4-87.412. Controls the operation of an annealing furnace in which partially drawn shell-cases and bullet jackets are heated to relieve the strains set up by preceding processing operations, and to soften and clean the metal for further treatment; puts furnace into operation by turning on heater switch, adjusting steam valves to heat the acid and water baths, and by regulating speed of conveyor which carries articles through furnace; makes up the acid bath and keeps it at a prescribed concentration by periodically testing it with chemical indicators and mixing and adding quantities of sulphuric acid and water as necessary; periodically estimates the concentration of the soap solution by rubbing it between the fingers, increasing or decreasing the concentration as required; watches annealed product for evidences of improper annealing, such as dark spots indicative of a weak acid bath; makes repairs and adjustments to the machine to keep it functioning properly.

*FURNACEMAN XII 4-86.020. Shapes structural members and other steel parts used in the construction and repair of ships: heats steel member in a furnace or applies a heating torch to those sections of the part to be shaped; shapes the heated steel members according to guide lines and other specifications by bending and beveling the members on a bending slab with a hydraulic ram, moon bar, or beveling bar (steel devices used to bend steel on a slab); shapes large plates by positioning them on specially built forms and directing ELECTRIC-BRIDGE-CRANE OPERATOR in lowering heavy weights onto the plates at those sections to be shaped; bevels cold steel structural shapes by holding a fuller (a long-handled steel tool with a flat head and a wedge-shaped working end) against portion of shape which is to be bent and directing STRIKERS VI in beating the head of the fuller with mauls; makes simple bends in steel plates by heating specific areas of the plates with a gas-heating torch and quickly cooling the heated areas with streams of water. May joggle structural shapes by heating certain areas of the parts with a torch and bending the steel as desired with hand tools.

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*GAGE-AND-WEIGH-MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Makes repairs and adjustments to machines that gage and weigh cartridge cases: removes and replaces gaging dies by loosening setscrews, bolts, and nuts; places weight-test blocks on weighing pans and adjusts the position of the balance on the lever arm of the scale until equilibrium is reached.

*GAGE INSPECTOR 4-76.220. A TOOL INSPECTOR who tests and approves new gages and inspects gages in use to ascertain that they are maintaining their accuracy.

*GAGER I 6-78.672. Inspects small parts, such as bolts, nuts, screws, and other similar products for defective workmanship, flaws in material, and other discrepancies; uses internal and external gages to examine threads, diameters, and sizes.

*GAS-PLANT OPERATOR III 6-52.371. Produces acetylene gas in a generator for use in welding, cutting, and other purposes: manipulates a valve to permit water to enter generator chamber, shutting off water when gage indicates that water has reached proper level; pours prescribed amount of calcium carbide crystals into a perforated metal container or hopper anchored above the water level inside the

generator, and bolts on cover to make generator airtight; starts motor to activate the device that sifts the carbide from its container into the water, producing acetylene gas from the resulting chemical reaction, and that forces the gas from the generator through pipes into a storage tank; observes pressure gages of generator to determine amount of gas flowing into storage tank, stopping generator motor when gas pressure becomes too high; drains water and cleans sludge from generator chamber. May fill steel cylinders with the compressed gas.

*GAS-PRODUCER MAN 6-56.010. Tends a battery of gas producers (refractory-lined iron cylinders) in which coal is converted into a combustible gas for domestic or industrial fuel purposes: starts mechanical stokers to charge coal through top of producer units onto grates; kindles fire in each unit and starts blower to hasten combustion; regulates speed of stokers to charge coal continuously at proper rate when combustion has reached desired intensity, and speed of blowers to force air and steam between bed of incandescent coal and freshly charged coal above it (a chemical reaction, caused by the steam passing over the burning coals, produces carbon monoxide, hydrogen, and methane, three highly combustible gases); observes condition of combustion through lids in top of producer units and reads gas pressure gages to determine whether gas is being produced properly; shuts units down and orders helper to clean out ashes.

*GEAR-GENERATOR OPERATOR I 4-78.131. Adjusts and operates a machine that automatically cuts teeth on gears: selects and fastens cutter in machine; adjusts feed speeds, templates, and cams to produce the cutter motion required for the gear type being machined; starts machine and turns on cutter lubricant; observes operation of machine and removes completed gear when machine stops.

*GEAR-GENERATOR OPERATOR II 6-78.133. Tends one or more automatic gear-generator machines for cutting teeth on gears, after machine has been set up by another worker, usually a JOB SETTER II: fastens gear blank in place on arbor, chuck, or other holding device; starts machine and turns on cutting lubricant; removes completed gear when machine stops; gages cut with calipers, micrometers, or verniers; may make minor adjustments. Does not set up machine or make major adjustments.

*GEAR-HOBBER OPERATOR I 4-78.132. Machines the teeth on gears with a specialized machine that resembles a milling machine: selects a suitable hob (cutting tool) and fastens it in machine; sets up gear train which sets proper speed ratio between gear blank and hob; presses gear blank onto an arbor and mounts arbor and blank in machine; turns handwheels to adjust relative position of hob and gear; moves levers to set machine to feed at suitable rate of speed; starts machine; adjusts nozzle to pour cutting lubricant over work; removes completed gear when machine has finished.

*GEAR-HOBBER OPERATOR II 6-78.134. Operates one or more automatic gear-hobbing machines especially designed for cutting gear teeth, after machine has been set up by another worker, usually a JOB SETTER II; fastens workpiece in place; starts machine and adjusts nozzle to pour lubricant over work; observes automatic operations to make sure machine is functioning properly; removes gears when work is completed; gages cut with calipers, micrometers, or verniers; may make minor adjustments. Does not set up machine or make adjustments.

*GEAR MATCHER 7-02.715. Matches gears, such as pinion and ring gears, in pairs that mesh with each other satisfactorily: clamps one gear of each type in fixture or chuck of machine; meshes gears and runs them at varying speeds and loads; observes indicator gage of machine which records backlash; listens carefully to sound of meshing gears to detect unusual noises, indicating poor meshing; tests various combinations of gears to get best possible matching; wires matched gears together.

*GEAR-MILLING-MACHINE OPERATOR I 4-78.133. Cuts teeth on gear blanks with a milling machine of special design.

*GEAR-MILLING-MACHINE OPERATOR II 6-78.135. Tends one or more automatic milling machines especially designed for cutting gear teeth: fastens workpiece on table, after machine has been set up by another worker, usually a JOB SETTER II; observes automatic operations; removes gear when completed; may make minor adjustments. Does not set up machine or make major adjustments.

*GEAR-SHAPER OPERATOR I 4-78.134. Machines the teeth on gears with a special gear-cutting machine: selects a suitable formed cutter and fastens it in machine;

presses gear blank onto an arbor and mounts arbor and blank in machine; consults ratio table and selects and installs a gear train by which the rotation of the oscillating cutter gear is controlled to obtain desired spacing between teeth; starts machine and turns crank or handwheel to adjust machine to cut teeth to required depth; adjusts nozzle to pour cutting lubricant over work; stops machine and removes work when gear is completed.

*GEAR-SHAPER OPERATOR II 6-78.136. Tends one or more automatic shapers especially designed for cutting gear teeth: presses gear blank onto arbor and mounts arbor and blank in machine, after machine has been set up by another worker, usually a JOB SETTER II; starts machine and coolant feed; observes automatic operations to make sure machine is functioning properly; removes gears when completed; gages cut with calipers, micrometers, or verniers; may make minor adjustments. Does not set up machine or make major adjustments.

*GEAR-TOOTH GRINDER 6-78.132. Operates one or more machines that rough-grind and finish-grind the surfaces of gear teeth: places gear on spindle or in arbor which alines piece to grinding tools; starts machine; adjusts machine between various grinds, several of which may be made, the machine stopping automatically after each operation; removes finished gear from spindle or arbor; refaces cutting wheels by holding dressing tool against worn surface. May set up and adjust machines.

*GENERAL ASSEMBLER I 7-02.311. A classification title for workers engaged in the assembly of the finished combat motor vehicle.

*GISHOLT-LATHE OPERATOR 6-78.163. Operates a lathe with a removable turret which can be converted rapidly to an engine lathe or a turret lathe.

*GLAZIER V 5-77.010. Cuts and sets window or skylight glass in the construction of a ship or boat; cements glass panes into sash with putty and putty knife; fastens by clips and bolts plate-glass panes into puttyless steel skylight sash; installs sheets of structural glass to form walls, ceilings, or partitions by spreading mastic cement over support and pressing glass into it.

*GRAINING-PRESS OPERATOR 6-52.445. Molds smokeless powder into long thin rods prior to cutting, drying, and bagging by extruding blocks of colloidal powder through the dies of a hydraulic press: procures specified dies from stock and attaches them to compression cylinder with thumbscrews or clamps; inserts a block in compression cylinder, locks cover in place with thumbscrews, and manipulates ram control valves to extrude powder slowly and cautiously to avoid explosions; examines extruded lengths for dirt streaks and cuts; positions fiber containers under the discharge troughs of each hole in the die, replacing them as they are filled with extruded powder strands.

*GRATING MAKER 4-84.611. Fabricates steel floor gratings and ladders to be used on ships: studies blueprints and actual locations; measures and cuts bar stock with a power hacksaw for rungs, treads, and sides of gratings and ladders; rounds the ends of rungs and treads, and punches corresponding holes in side pieces with metalworking machines; has pieces bent when necessary; assembles units and peens ends of rungs and treads projecting through side pieces.

GRINDER 6-77.040. Operates a portable electric machine into which a variety of tools can be inserted, such as coarse, medium, and fine grinding wheels, wire brushes, and cloth buffing wheels, to smooth and polish automotive equipment prior to painting.

GRINDER OPERATOR IV 6-52.751. Supervises the operation of one or more grinders, used in breaking solid particles from a larger to a smaller size: directs workers in cleaning and feeding grinders; selects type of screens needed to produce powder of specified size, installs them in machines, and starts grinders; samples the materials ground and checks with the control laboratory for specified particle size; supervises the packing of the ground material; keeps record of material ground and weight packed; supervises maintenance of grinders and removal of dust from bags that are attached beneath machine.

GROOVING-MACHINE OPERATOR I 6-78.211. Cuts oil grooves in various parts, using a machine that broaches or mills the passages.

GUIDE GRINDER 6-77.750. Reshapes worn guides used on rolling mills to guide metals to and from the rolls, by holding them against a power-driven grinding wheel. May make new guides from small steel bars which have been sawed to length for that purpose.

*GUN-BARREL-DRILL OPERATOR 6-78.084. Drills oil passages in crankshafts and connecting rods, using a rifle-drill bit designed to cut holes of great depth and small diameter.

*GUNSMITH 5-83.542. Repairs, designs, alters, and makes guns: replaces sights by drilling hole in gun barrel and screwing sight in place, filing off projections on inside of barrel; reduces size of gunstocks by sawing them off and refitting them to gun; replaces broken or worn gunlock parts, repairing old parts, inserting new parts from stock, or making new parts if necessary on a lathe, shaper, or other metal-working machines; rebores gun barrels on a boring machine; designs new guns, laying out plans on paper and calculating bullet-flight arcs, sight positions, and other details by algebra, plane geometry, and other simple mathematics; makes new guns, machining metal parts on lathes, shapers, and other machines, and cutting and shaping stock with various hand and machine woodworking tools.

H

*HANGERMAN 5-30.020. Installs hangers for supporting pipe-lines on a ship: inspects temporarily supported pipes to ascertain the location and type of hangers to use; marks location of holes to be drilled and the position of hangers to be welded; sketches hangers to be fabricated for supporting pipe from irregular or difficult positions; adjusts hangers in place, bolting and bending them as necessary to produce the proper fit.

*HARDENER II 4-87.220. Increases hardness of carbon steel objects by heating them to a predetermined temperature and cooling them quickly by quenching them in a suitable bath of oil, water or the like. May also temper steel.

*HARDNESS INSPECTOR 4-87.910. Checks degree of hardness of metal parts after heat treating: selects clean flat surface for test and places part in tester; operates tester to force a steel ball of diamond point into the metal surface or to cause a small diamond-pointed hammer to rebound on the surface; notes reading on dial or indicator to determine dimensions of indentation, depth of penetration, or height of rebound from which hardness is determined; rejects parts that do not comply with hardness standards.

*HARNESS REPAIRMAN 4-62.120. Repairs and replaces worn or damaged harness parts and constructs new harnesses: cuts leather strips from hides, using a straight-edge and knife; sews strips together by hand or using a harness-stitching machine; attaches buckles, rings, and other metal devices to strap ends by looping end over and stitching or riveting it; punches buckle holes in straps, usually using a hand punch; applies dressing to harness by hand; frequently cleans and dresses harnesses.

*HEAD-TURN MACHINE OPERATOR 6-78.021. A TURRET-LATHE OPERATOR, AUTOMATIC who tends one or more machines that perform a series of cutting operations on cartridge cases, such as facing the case end and cutting a groove near the primer end: lubricates and starts the machines, notifying a laborer when the hoppers become depleted; observes machines in action to make sure that cases are being fed, cut, and discharged properly; clears jams and makes minor adjustments to set machine in operation; periodically checks parts with go-no-go gages; examines samples for defects, such as burrs and dents, notifying an adjuster where major corrections are necessary.

*HEAT TREATER II 4-87.010. Alters the physical and chemical properties of the steel of such parts as dies, cutters, and machine parts, to produce a specified degree of hardness, toughness, or strength by an established process of controlled heating and cooling.

*HEATER III 4-88.081. Heats metal billets to the proper extrusion temperature in a furnace: rolls cylindrical billets in and out of furnace with a metal hook; adjusts thermostat controls to maintain a constant temperature within the furnace; heats billets for a prescribed length of time to insure an even temperature throughout the metal and to prevent excessive formation of oxide on the surfaces;

decides when billets have reached the proper temperature for extruding by observing their color through an aperature in the furnace.

*HEATING-AND-VENTILATING-INSTALLATION ASSEMBLER 5-03.562. A SUBASSEMBLY INSTALLER I. Installs heating and ventilating apparatus and controls in partially completed airplanes according to specifications: bolts steam generating boiler, steam bottle, and radiator to previously placed brackets; installs steam and water pipes, attaching them with couplings to appropriate units; connects control and safety valves at specified points; installs pulleys and runs control cables over them from the pipe valves to the pilot's compartment; bolts or screws air ducts to brackets or specified structural members; insulates pipes, ducts, steam bottle, and valves, either by wrapping parts in asbestos or similar material, or by placing a boot (heavy canvas covering) around part and packing it with insulating material; usually brushes a protective coating of shellac over the insulation covering. May install control levers in pilot's compartment and attach control cables to levers.

*HONING-MACHINE OPERATOR 4-78.411. Grinds the internal surfaces of cylinders to mirror-like smoothness with a machine that feeds an expansible, reamer-like, abrasive-shod tool through the bore of the cylinder: selects required tool (hone) and clamps it on spindle of machine; adjusts machine to feed and rotate hone at appropriate speeds; turns adjustment nuts on hone to expand it to required diameter; starts machine and turns handwheel to feed hone into cylinder; engages automatic feed that oscillates hone within cylinder; directs a stream of cutting lubricant from a nozzle into cylinder; stops machine, withdraws hone, measures diameter of cylinder, and readjusts hone; removes work when honing is completed.

*HONING-MACHINE OPERATOR, SEMIAUTOMATIC 6-78.412. Operates one or more machines that hone and lap the cylinder walls of motor blocks: moves motor block from conveyor by using a hoist or by sliding block along roller conveyor; clamps block into machine in a position alined with the cutting spindles; lowers spindles into each cylinder and adjusts cutting tools for proper depth of cut; starts machine, which automatically performs the operation for which it is set and withdraws the spindles to the starting position; stops machine, releases block from clamps, and pushes block by hand onto roller conveyor; gages cylinder walls with ring gage; pushes block along roller conveyor to power conveyor.

*HORIZONTAL-BORING-AND-MILLING-MACHINE OPERATOR 4-78.042. Sets up, adjusts, and operates a machine that resembles a horizontal boring mill, but which is adapted to a wide variety of machining operations, such as drilling, boring, and milling: alines work on table of machine and clamps or bolts it; selects appropriate cutting tools and fastens them on spindle of machine; moves levers to adjust spindle and feed speeds for the work; turns handwheels to adjust positions of cable and spindle; starts machine; engages automatic feed or turns handwheel to feed cutting tool into or along work; stops machine and measures work or changes cutting tools as required; removes completed work from machine.

*HOT BENDER III 4-95.051. Bends large, heavy, steel pipe to specified curvatures by progressively heating it at various points along its length with a blowtorch and directing helpers in pulling the free end: determines the bends to be made from templates or drawings and chalks guide lines on the pipe; assisted by helpers, hoists the pipe to a work slab, clamps it in place, and attaches ropes and pulleys to it; lights and adjusts an oil torch and applies the flame to the pipe; determines visually when the pipe is at a suitable bending temperature and directs helpers in bending the pipe with the tackle; cools pipe areas with water jet as they reach the correct curvature to prevent further bending; checks curves against templates or drawings and continues process to obtain desired shape; sometimes shapes pipe to fit pipe targets (wooden patterns). Does not use any radius blocks as opposed to PIPE BENDER, HOT BLOCK.

*HOT-MILL ENGINEER 5-72.050. Operates engines that run hot rolling mills for the reduction of bars and sheets; regulates speed and maintains engines in running condition.

*HULL INSPECTOR 5-05.511. Inspects hulls of ships under construction, relative to laying of the keel, assembling and erecting plating, rolled sections, double bottoms, girders, floors, side frames, deck beams, side shell plating, and other parts to determine if mechanical details conform to plans and specifications; inspects commissioned vessels, afloat or in drydock, relative to the condition of double bottoms, outer shell of hull, openings for sea valve and other items, to

detect evidence of corrosion or deterioration in the structure; may supervise the testing of double bottom compartments or oil bunkers; makes written reports of inspections.

*HYDRAULIC-CONTROL-UNIT ASSEMBLER 5-03.540. A DETAIL ASSEMBLER II. Inspects, assembles, and tests hydraulic pumps, pressure-regulating valves, and tanks of the hydraulic control systems of aircraft to insure their efficient operation; examines all parts of a unit for conformity to blueprint specifications, moving levers, valves, and plungers to make certain of their free and correct action; measures parts with calipers, verniers, or micrometers to determine whether or not they are within the prescribed tolerances; bolts, screws, and otherwise fastens parts together using a jig or fixture to aline and position the parts, and using ordinary and specialized hand tools to tighten the fittings; tests assembled units under prescribed pressures by connecting them to a small, hand pump and forcing fluid into the unit, noting leaks and other defects; makes adjustments with hand tools; laps and hones interior cylindrical surfaces to fine tolerances using a power or hand-operated cylindrical tool dipped in a fine moist abrasive; seals pores in small castings by forcing chemical compounds, such as sodium silicate, into the pores with compressed air; bakes treated castings in a small oven to harden the compound.

*HYDRAULIC-FIELD-SERVICE MECHANIC 5-80.450. Tests and adjusts airplane hydraulic units, such as pumps and pressure-regulating valves, preparatory to test flights; visually inspects hydraulic lines for leaks, testing and tightening connections with wrenches; examines fluid reservoirs on variable-pitch propellers, brakes, and other units, adding fluid as needed; checks air pressure in shock absorbers with a gage, inflating them to desired pressure, using a hand pump; accompanies airplanes on ground tests, diagnosing operating defects in hydraulic system; replaces faulty hydraulic units, such as landing gear retractors and flight-control mechanisms, using wrenches, pliers, and other common hand tools.

*HYDRAULIC-STRUT ASSEMBLER 5-03.540. A DETAIL ASSEMBLER II. A HYDRAULIC-CONTROL-UNIT ASSEMBLER who inspects, assembles, and tests the actuating cylinders and pistons of hydraulically operated shock-absorbing devices used on airplane landing gears to insure their satsifactory performance in actual operation.

*HYDRAULIC-SYSTEM CHECKER 5-03.572. A MAJOR-ASSEMBLY INSTALLER. Joins together the hydraulic system units and connects them to the actuating mechanisms; joins performed pipe sections, fitting them to each other and to the airplane by hand bending; connects lines to the hydraulic control systems which operate landing gears, wing flaps, ventilators, brakes and other hydraulically operated equipment; fills the hydraulic system reservoir with fluid and pumps it throughout the system; inspects the system (tubing and activating cylinders) for leaks, tightening loose connections and replacing defective tubing, using hand tools; tests the various sections of the system, such as the landing gear, by operation, replacing faulty cylinders with new ones.

*HYDRAULIC TESTER II 5-03.840. Tests and adjusts airplane hydraulic systems, such as those used to actuate landing gears and wing flaps, before installation on the airplanes; determines proper testing procedure on the basis of the construction of the parts and employing blueprints and charts; connects parts to a hydraulic test board, attaching any gages needed to supplement the board; starts pump which forces oil through the unit causing the working parts to operate and notes the pressure required to do so, adjusts mechanism to insure smooth operation, using hand tools.

*HYDRO-PRESS OPERATOR 4-88.632. Controls the operation of a large, hydraulic power-press which shapes sheet-metal airplane parts; manually positions the lower dies on the press bed; cleans die surfaces and oils the die and material to lessen friction during the shaping operation; positions rubber pads over sheet metal on dies to prevent fracturing of metal being shaped; judges pressure needed according to amount of draw to be made; sets pressure control and starts machine, causing the ram to descend and shape the metal. If press is equipped with loading tables, pushes control buttons to position under the ram, a press table on which dies, sheet metal, and rubber pads were previously positioned.

*HYPOID-TESTING-MACHINE OPERATOR 7-02.721. Operates a machine that meshes a ring gear with a pinion gear after gears are cut as a check on the accuracy of the set-up of the gear cutting machines; mounts gears at right angles on two spindles of machine; paints each gear with a mixture of red lead and oil which serves

not only as a lubricant, but also serves to show high and low spots on the gear teeth; operates hand controls to bring gears into mesh; allows machine to run and observes operation of gears; stops machine and removes gears; inspects closely for signs of defective meshing; writes reports informing JOB SETTER or GROUP LEADER of faults.

I

*INSPECTING-MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Makes repairs and adjustments to a battery of machines that convey cartridge cases past the view of inspectors: synchronizes the machine action by turning adjusting screws with wrenches; removes burrs from the paddles of the automatic hopper feed, using emery cloth; tightens drive belts by turning tension wheel; adjusts mouthpiece leading to the conveyor from the hopper, using wrenches to aline it properly; replaces mirrors that enable the inspector to see the mouths and heads of the cases.

INSPECTOR 6-54.038. Examines cartridges or cartridge components, such as cases, bullets, and primers, for defects in material or workmanship: either picks up each part and scrutinizes it carefully or sits before a conveyor that propels the parts past the worker; looks for defects, such as scaly metal, malformations, discolorations indicative of improper annealing, nicked or oversized parts, burrs, dents, and other such irregularities and segregates imperfect ones according to the nature of their defects.

*INSPECTOR 4-78.671. Examines parts or products for flaws or defects and checks dimensions against blueprint specifications, using precision devices for measuring, such as calipers, and micrometers. May test hardness of steel parts with Rockwell hardness tester, scleroscope, or other device.

*INSPECTOR, CHIEF I 4-82.910. Directs and supervises examination of castings by CASTING INSPECTORS who look for blowholes, cracks, rough spots and other defects; examines rejected castings to determine if they can be salvaged; orders replacements for scrapped castings; weighs accepted castings; checks sample castings against blueprints for dimensions and shape; authorizes production of castings after acceptance of sample.

*INSTALLATION MECHANIC 5-03.562. A SUBASSEMBLY INSTALLER I. Bolts, screws, and rivets fittings, parts, and auxiliary equipment, such as pulley brackets, radio tables, doors, windows, armament, and turrets to aircraft: locates position of parts following blueprints and using ruler or locating jig; drills rivet and bolt holes with an electric drill; rivets parts; tightens bolts, nuts, and screws using wrenches and screw drivers; files and scrapes parts to a more perfect fit; opens and closes doors and moves parts and levers after installation to make certain they operate freely; demonstrates methods of installation to less experienced workers.

*INSTRUMENT INSPECTOR 5-83.973. Inspects, tests, and adjusts airplane instruments: usually examines the instruments for physical defects, such as broken glass, missing indicators, and dents; tests pressure operated instruments, such as altimeters, air-speed indicators, and oil and fuel gages, vacuum operated instruments, such as bank and turn indicators, and directional gyroscopes, and electrically operated instruments, such as oil and cylinder temperature gages, using special testing equipment which simulates actual conditions, and standardized instruments; adjusts instruments, removing the glass, turning setscrews and substituting fresh needles; fills in rejection tags for defective instruments, explaining his findings.

*INSTRUMENT-LENS CENTERER AND EDGER 7-08.018. Determines the optical center of microscope, telescope, and similar lenses by the reflection or transmission methods and grinds the edges concentric with the optical axis: attaches lens to the periphery of a metal tube with warm pitch or cement; rotates the tube about its longitudinal axis and either observes, at an angle, the motion of a reflected image on the lens (reflection method) or looks through a tubular, optical system to observe the motion of a ray of light passing through the center of the lens (transmission method); moves the lens on the tube with a forked stick until the image or light ray remains stationary as the tube is rotated; hardens the warm pitch with a sponge dipped in cold water and places the tube in a holder or a grinding stone or diamond lap and grinds the edges.

*INSTRUMENT MAKER I 5-00.912. Puts together the finished parts (usually made by other workers) of various electrical instruments, fitting, testing, calibrating, and making necessary adjustments as required; often makes required parts, using small tools and precision machines and measuring devices; repairs worn or defective instruments.

*INSTRUMENT MAKER II 4-75.130. Specializes in the construction, alteration, or repair of mechanical instruments or the mechanical portions of electrical and optical instruments, requiring highly skilled workmanship and extreme accuracy for observations and scientific operations in the field for which the instrument is to be made; works from drawings, blueprints, rough sketches, or oral instructions; operates precision machinery of all kinds, such as lathes, drills, grinders, milling machines, lapping and polishing machines; brazes, welds, solders, hardens, anneals, and tempers metals; works in iron, steel, copper, aluminum, platinum, silver, nickel or any alloy, bakelite, ivory, bone, glass, or other material; paints, lacquers, enamels, engraves, or otherwise finishes instruments and cases.

*INSTRUMENT MAN IV 5-83.972. Removes, tests, repairs, calibrates, and reinstalls aircraft instruments, such as air speed indicators, gyro compasses, altimeters, turn and bank indicators, tachometers, and engine and carburetor temperature indicators, using small wrenches, pliers, tweezers, and other small tools and various testing devices, such as a vacuum pump tester; makes new parts if replacement parts are not available, using precision hand and power drills. A thorough knowledge of the functions and operation of the various instruments is required.

*INSTRUMENT-PANEL ASSEMBLER 5-03.554. A SUBASSEMBLER III. Prepares airplane instrument and switch panels for installation: assembles prefabricated parts to make subunits, such as electrical junction boxes and instrument brackets; positions assembled units on panels and clamps them together; drills holes through panels and parts with an electric hand drill according to markings or blueprint specifications, reaming, tapping, and countersinking the drilled holes as necessary with a drill-press and hand tools; rivets, bolts, and screw parts to panels with hand and pneumatic tools; fastens instruments, gages, knobs, switches, and levers to the assembled panels, using bolts, screws, and clamps; adjusts and sets instrument indicator hands; attaches short lengths of metal and rubber tubing to backs of valves and instruments on the instrument panel and tests the vacuum and pressure lines for leaks by blowing into or sucking at the ends of the attached tubing.

*INSTRUMENT REPAIRMAN 5-83.971. Repairs and adjusts recording, regulating, and control instruments, such as pressure, flow, and combustion meters and gages: disconnects inaccurate or damaged instrument and replaces it with a spare one, using a wrench; dismantles instrument, using various hand tools; examines mechanism and cleans parts in gasoline or water; replaces worn or broken parts with new ones; may make new parts or repair old ones on a lathe; assembles instrument and installs it on testing apparatus; calibrates instrument to coincide with an established standard; inspects all recording instruments periodically and makes minor adjustments to those not functioning properly. May adjust and repair mechanism and valves of automatic control devices. May be specifically designated according to department of refinery.

*INTERNAL-GRINDER OPERATOR I 4-78.512. Operates a machine that grinds to accurate dimensions and desired finish the internal cylindrical surfaces of openings in metal parts into which another part is to fit, such as hubs of gears, pulleys, and wheels: clamps part in machine, securely alining piece with the grinding wheel; starts grinding wheel, and advances wheel to piece by means of hand controls; operates other controls to regulate cutting position and depth of cutting; withdraws wheel from piece and gages piece, accuracies of 0.0005 inch sometimes being required; repeats grinding and gaging until piece is satisfactory; removes piece from clamp. May dress tools and adjust machine.

*INTERNAL-GRINDER OPERATOR II 6-78.523. Finishes internal cylindrical metal openings on an internal-grinding machine, performing simple, repetitive, precision grinding operations, as contrasted to the INTERNAL-GRINDER OPERATOR I who is capable of performing a variety of complicated grinding operations, using the same machine: fastens workpiece in spindle; feeds abrasive wheel into work by turning hand wheel or using automatic feed device or, where automatic machines are used, observes automatic machine operations, frequently tending several machines; removes work when completed; gages cut, using micrometers, calipers, and

verniers. May make simple set-ups, although frequently this is done by another worker, usually a JOB SETTER II.

*INTERNAL-KEYSEATING-MACHINE OPERATOR 6-78.121. Cuts keyseats within the hubs of such parts as wheels and gears with a machine that pulls a file-like broaching tool through the hub opening: measures hub and marks guide marks for keyway upon it; selects appropriate keyseat cutter (broach) and clamps it in machine; places, alines, and clamps work on table of machine; may turn and adjust screw to tilt table for cutting tapered keyways; sets feed stop for required depth of keyway; turns on motor, starts machine, and turns handwheel to bring cutter into contact with work; engages automatic feed or continues to turn handwheel until keyway is cut to required depth; stops machine and unclamps and removes work when keyseat is completed.

*IRON PUDDLER 4-91.573. Makes wrought iron in a puddling furnace: charges, or supervises helpers who charge, a small reverberatory furnace by shoveling or throwing in mill shale, iron ore, coke, coal, pig iron, and slag, in the correct proportion; regulates heating of furnace and when mass becomes molten stirs and works it into a spongy ball with a long, steel bar (rabble or puddling bar); decides from the cherry-red color of the ball when it is ready to be withdrawn and, assisted by a helper who manipulates one handle of a pair of trolley-suspended tongs, grasps and removes the wrought iron from the furnace and pushes it to the shaping mill. Works under extremely hot conditions.

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*JEWELER II 4-75.130. An INSTRUMENT MAKER II who specializes in the construction, maintenance and repair of delicate and highly sensitive scientific instruments and apparatus, such as barographs, thermographs, chronometers, photographic recording instruments, chronometric timing devices and balance mechanisms, demanding high precision work and methods; assembles small intricate mechanisms, such as gear mechanisms for selective or vernier drive on research instruments; cleans, tests, adjusts, and calibrates scientific instruments and apparatus, such as electric measuring devices of high sensitivity and accuracy, pyrometers and optical devices; grinds and polishes pivots; mounts hair springs and small mirrors and adjusts them for sensitivity; works from drawings, blueprints, sketches or oral instructions and operates precision machines, such as a small jeweler's lathe, drills, grinders, lapping and polishing machines; uses hand tools common to engravers' and jewelers' trade.

*JIG-BORING-MACHINE OPERATOR 4-78.043. Uses a precision boring machine to make holes with extreme accuracy in such objects as boring jigs: clamps work to be bored on table of machine; places center punching tool or center drill in chuck on spindle of machine; turns handwheels and reads calibrated dials on handwheel shafts to locate centermarking punch or drill accurately over points on work where holes are to be drilled; lowers spindle by turning handwheel to mark locations for hole centers; replaces center marking tool in chuck with drill of appropriate size; starts machine; positions drill over center mark; turns handwheel or engages automatic feed to drill holes; replaces drill in chuck with boring tool or end cutting reamer; positions boring tool or reamer over drilled hole; feeds tool or reamer through hole to cut it very accurately to size.

*JOB SETTER II 4-75.160. Installs cutting tools in various types of automatic or semiautomatic machinery; adjusts guides, stops, working tables of machine, and other controls to handle the size of stock to be machined; operates and adjusts machine he sets up until accurate production (based on blueprinting specifications, patterns, or templates) has been achieved; checks production with precision gages, often to tolerances of 0.0005 inch; turns machine over to regular operator when it is producing satisfactorily.

*JOGGLE-PRESS OPERATOR 4-88.624. Sets up, adjusts, and operates a power press to bend or flange reinforcing offsets (joggles) in aluminum alloy sheet-metal parts which are too narrow or small to be fabricated on a brake machine: clamps jig on machine bed and attaches stamping plate (die) to press head; adjusts machine to blueprint specifications (.001 inch tolerance), using verniers to measure test impression; places metal parts in jig one at a time and depresses pedal to set machine in operation; inspects each piece for cracks along the bent area.

*JOINER VI 5-25.650. Constructs cabinets, closets, shelves, deck houses, skylights, berths, and all the interior woodwork necessary for the completion of a

ship or boat, working from blueprinting specifications, using such hand tools as a hammer, saw, plane, chisel, rule and screw driver; does not perform carpentry of a heavy or rough character.

K

*KELLER-MACHINE OPERATOR 4-76.910. Sets up, operates, and may repair a machine that automatically reproduces a wood pattern, or a metal die, by cutting (sculpturing) a press die, forge die, or other part out of a block of metal: clamps and bolts wooden pattern or die to be reproduced to upper faceplate of machine, alined with the tracing tool; bolts steel block, from which die is to be cut, to lower faceplate, alined with the cutting tool and parallel with the pattern in all planes; sets the tracing tool and cutting tool to a common base point on the pattern and block; starts machine and allows it to run, often for periods of several days, automatically cutting die out of block of steel; watches machine constantly to check on proper operation and to detect and change worn, dulled, defective, or broken tools. May may make a second, finer machining of the die by changing to a finer tracer and a finer cutting tool. Unclamps and removes pattern and die from machine. May repair and adjust machine.

*KEY FLOORMAN 1-38.04. A STOCK-CONTROL CLERK who routes sheet metal for shearing operations to maintain required standards of production; supervises measuring of sheet metal according to specifications so that minimum waste of metal will occur in shearing.

*KICK-PRESS OPERATOR II 6-38.627. A FORMING-PRESS OPERATOR I who tends a pedal actuated power press to shape small aircraft parts, such as brackets, clips, and clamps, and to perform shearing operations, such as rounding corners and making angular cuts, according to specifications. May replace shaping and cutting dies with a punching tool to punch holes in sheet-metal parts.

L

*LANDING-GEAR ASSEMBLER 5-03.554. A SUBASSEMBLER III. Puts together the component parts of airplane landing gears using ordinary and specialized hand tools, and tests the landing gears to insure their efficient and accurate performance when installed in an airplane: inspects struts and fittings for defects and compares them with blueprint specifications to ascertain the tolerances and assembly procedure; bolts and screws parts together using a jig or fixture to aline the pieces in the proper position before completely tightening the fastenings; tests the landing gear for operating efficiency by filling the shock absorbing cylinders and reservoir with special liquid, pumping in air to the prescribed pressure, and noting leaks and dial readings, balances wheels in a special machine to determine the heavy side, the screws or otherwise attaches small weights to the lighter side of the wheel until it has reached equilibrium; performs other necessary functions to complete the installation of the wheel.

*LAPPING-MACHINE OPERATOR 6-78.413. Grinds surfaces of adjacent, moving parts one against the other, or surfaces of finely finished parts with a plane, spherical, or cylindrical hone (lap) which is changed or changeable with abrasives, to obtain perfect bearing surfaces: places parts to be lapped in machine and adjusts machine to move them in relation one to another so as to simulate the motions they will have when the machine or device of which they are parts is operated; adjusts a nozzle to pour fine abrasive-laden liquid over the area of contact between the moving parts; starts machine; stops machine after a predetermined interval and removes lapped parts. May clean parts in a solvent, such as gasoline, using a cloth or brush.

LATHE OPERATOR, AUTOMATIC I 6-78.164. Operates one to four automatic lathes which perform in sequence a series of operations on parts, such as pistons, camshafts, and other precisely machined parts: lifts parts into machine and clamps them in place, alined with cutting tools; starts machine which automatically performs a series of operations, such as facing, chamfering, rough cutting, and finish cutting; loads one machine while others are operating; removes finished pieces, inspecting them visually and by gage. Observes operation of machines closely to locate tool defects or failures, and changes defective tools. May set up machine.

*LATHE OPERATOR, LARGE 4-78.011. An ENGINE-LATHE OPERATOR I who shapes very large and very heavy castings and forgings, such as ship-propeller shafts. May

balance large and heavy shafts to extreme accuracy; directs ELECTRIC-BRIDGE CRANE OPERATOR in hoisting shaft to bearings; clamps ring with projecting arms around shaft, revolves shaft with a power-driven belt, and reads any vibration on a micrometer gage set against the shaft; adjusts weights on ring arms until shaft runs true, calculates by formula the weight of metal to be removed, and re-turns shaft in lathe until balance is attained.

*LAY-OUT MAN 4-80.002. Plans sequences of work to be followed and determines number of shearing operations required to fabricate airplane sheet-metal parts; calculates from work order the most appropriate size material to be used; determines the kind and number of cuts to be made by arranging a template in various positions on a lay-out table and referring to a shearing operations chart; calculates the number of pieces to be sheared from a standard metal sheet; notes on work order the size and number of metal sheets to be used, the kinds of cuts to be made, and the power shear to be used.

*LAY-OUT MAN 4-83.200. Lays out and marks on steel plates all curves, lines, points, dimensions, and directions for subsequent machine operations that are necessary for fabricating parts of boilers, tanks, and vats: draws lay-out to scale as outlined on blueprints; utilizes knowledge of trigonometry, and tank and boiler design in making lay-out; uses compass, dividers, scale, and other lay-out tools.

*LAY-OUT MAN 4-75.140. Marks guide lines and reference points on metal parts or castings to indicate material to be removed in machining: plates or coats metal surfaces with chalk or paint; scratches lines and points on metal surface with scriber and center punch, using gages, rulers, dividers, and straightedge to locate the positions for the marks; indents location of reference points, such as center points, using a center punch and hammer.

*LAY-OUT MAN 5-05.530. Marks off, with a hammer and center punch, metals and ship plates, to indicate the exact position of all holes, and to indicate the shaping and bending operations: working from drawings or templates, spots and indicates any part of the lay-out for various machine operations and for bench and floor workers, using measuring tools, such as scales, calipers, verniers, micrometers, bevel protractors, trammel points, and dividers, and his knowledge of applied mathematics.

*LAY-OUT MAN 4-33.912. Marks on stock lumber the outline of frames, fixtures, and other wooden sections, to which the machine operator works when processing the parts: (1) studies drawing of part or full assembly to be made; selects stock lumber of necessary size and measures and marks, with rule, square, and pencil or crayon, outlines of cuts to be made by various machine operators; (2) lays cardboard or wooden pattern on stock and draws around edges of pattern with pencil to mark outline of part. May write job tickets for machine operators. May make preliminary cuts with swinging-cut-off saw.

*LAYER-OUT, PIPING 5-05.630. Lays out and marks holes on installed plates, beams, and other ship parts to permit the installation and connection of pipes to machinery and equipment: studies actual locations, measures distances, and punches centers and scribes diameters of holes, frequently referring to blueprint sketches for details; adjusts the lay-out as necessary to avoid weakening structural members and to avoid obstructions.

*LEAD BURNER 4-95.031. Installs and repairs lead linings of tanks, lead pipes, and lead fixtures and equipment: cuts out section of sheet lead or lead pipe; scrapes and levels edges of old and new sections of lead; fits new section in place; applies flame of burner to joint, melting in additional lead from a bar and manipulating the torch to make a tight joint and trim the added lead to a smooth even contour; makes lead fittings, cutting and shaping the lead and burning it to seal the joints; may melt lead scrap, shavings, and surplus sheet lead, and cast it into bars or pigs. May band steel surfaces by burning lead into the joints. May supervise one or more helpers.

*LEAD MOLDER 6-81.090. Makes lead, male dies used in drop hammers: clamps asbestos-covered boards around female die to form a mold and seals the corners with wedges and clay; shapes the mold to correct contours with sand, using a trowel; fashions inserts by arranging bolts in a frame attached to the top of the mold; melts lead in a furnace and pours it into the mold; disassembles mold to remove the die.

LEATHER WORKER II 6-62.160. Makes and repairs leather gun slings, shoulder pads, straps, and other small arms material made of leather: rivets leather, using hand tools; splices leather by cutting with a knife and cementing pieces; sews seams by hand: attaches buckles and snaps to straps.

*LENS-EDGE GRINDER, HAND 5-08.045. Grinds edges of lenses by holding lens edge against a revolving wet stone, allowing the lens to turn slowly between the thumb and forefinger as it is ground; bevels or square cuts the edges for rimless or frame spectacle lenses; measures and marks the optical center or axis of the lens according to the prescription and grinds the circumference with the proper relationship to the axis.

*LENS INSPECTOR II 7-08.032. Works as a member of a crew performing a variety of duties in the inspection of finished lenses: measures lenses for thickness and circumference using a caliper gage and card gage; uses an optical power-determining instrument (lensometer) to verify the optical power; ascertains with special instruments the position of bifocal segments with reference to the optical center and nasal edge; examines lenses for surface defects, such as lines (striae), waviness, and rough edges; sorts lenses according to size, power, and quality.

*LENS MOLDER 5-09.050. Molds lens blanks by heating optical glass in a furnace and compressing the plastic glass between dies: covers the rotating floor of the furnace with a refractory powder to prevent the adherence of the heated glass to the floor; spaces lumps of glass on the furnace floor and regulates the heat so that the glass will be in the prescribed state of plasticity when the floor moves opposite the opening; slides piece of molten glass from the furnace into a spoon die using a long hook; shapes blank in the dies of a pedal-operated press; drops pressed lens blanks in a container for subsequent cooling in an annealing furnace (lehr); may use a small, hand furnace for special work.

*LINEMAN IV 5-53.420. Erects power line, consisting of poles, cable, and auxiliary equipment, to conduct electricity from the power plant to the place of use, erects poles; attaches fixture to pole by climbing pole and attaching cross arms to pole with log screws, nailing insulator with clamps, fastening lightening arrestors and auxiliary equipment; splices and solders cables.

*LOADING-MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Maintains in operating adjustment a battery of machines that load cartridge cases with powder and insert the bullets: examines stopped machines to ascertain the cause of malfunctioning; measures loaded cartridges with various gages to detect any variation from established standards; re-sets automatic stops and levers for correcting faulty action; bends rocker arms and other parts to improve their action, using a hammer; scrapes impacted oil, powder, and metallic particles from adjacent reciprocating surfaces with a pointed tool; blows excess powder grams from the machine with an air hose to prevent fire; adjusts machines to accommodate cartridges of different caliber and fire power.

*LOFTSMAN II 5-17.210. Lays out to full scale, on the mold loft floor, the lines of a ship and develops and makes full size wooden or paper templates or molds to conform to these lay-outs, using his knowledge of geometric construction and developments, and using such hand and woodworking machine tools, as crosscut, rip and cut-off saws, planers, jointers and band saws. May construct working models of vessels.

*LOFTSMAN III 5-17.245. Lays out to scale on plywood or sheet metal the lines of an airplane and its component elements preparatory to the making of blueprints and tools: makes preliminary lay-outs in reduced scale of exterior surface contours from engineering data and sketches, using draftsmen's tools, such as straightedges, triangles, and calipers, and employing his knowledge of descriptive geometry and trigonometry and his familiarity with airplane design; similarly lays out full-scale drawings of airplane structural units, such as fuselages and wings, working from engineering designs and loftings in reduced scale; prepares tables of full-scale off-sets of lofted airplane structures for shop use.

*LYE TREATER 6-52.741. Treats lye with chemicals to remove undesirable properties in glycerin purification: pumps correct amounts of chemicals to kettle containing lye to be treated; starts mechanical mixer; samples treated lye and receives from control laboratory information pertaining to degree of treatment; pumps treated lye to filter press to remove solids suspended in solution; records temperature of kettle, time of agitation, and amounts of chemicals used in treatment.

M

*MACARONI-PRESS OPERATOR 6-52.443. Extrudes smokeless powder through a screen die to remove impurities and secure uniformity of texture; loads compression chamber of press with blocks of compressed colloidal powder; bolts proper dies and screens in cylinder head; exerts hydraulic pressure on block to extrude powder in macaroni-like form by turning valve; places a chute under the die to guide the strands into a block press for further processing.

*MACHINE ADJUSTER III 7-83.326. A classification title for workers who maintain in productive operating adjustment a battery of machines designed to perform one function in a manufacturing process; periodically inspects samples discharged from each machine for dents, burrs, scratches, malformations, and other irregularities indicative of improper machine adjustment, frequently checking their dimensions with various gages; diagnoses the cause of faulty operation and makes necessary adjustments usually by turning setscrews or, if necessary, dismantles machine using mechanic's tools, such as pliers, screw drivers, and wrenches and replaces broken parts; repairs drive belts; cleans and oils moving parts as required; usually trains and supervises machine operators. May file, grind, and dress punches and dies and other worn parts. May alter machine set-up to produce articles of a different size. Turns machine over to regular operator when it is functioning properly.

*MACHINE MOLDER, JARRING 6-81.010. Makes various sized sand molds into which molten metal is poured to form castings, using a jarring machine to compact the sand in the molds; assembles flasks and pattern on table of machine; shovels sand into flask and opens compressed-air valve, causing table to rise and fall repeatedly and thus jolting the sand so that it compacts about the pattern; turns flask over and carefully withdraws pattern; assembles cope (upper) and drag (lower) sections of molds; may assist in pouring molten metal into molds.

*MACHINE MOLDER, SQUEEZE 4-81.050. Makes sand molds (usually small) into which molten metal is poured to form castings, using a squeeze machine to compact the sand in the molds; assembles flask and pattern on machine table; fills flask with sand; turns valve or depresses pedal to raise table with flask against pressure head of machine, the squeezing action serving to compact the sand about the pattern (some squeeze machines are equipped for jolt ramming); turns mold over and carefully withdraws pattern; repairs damaged mold impressions, and finishes and assembles cope (upper) and drag (lower) sections of mold; may assist in pouring molten metal into molds.

*MACHINE SET-UP MAN IV 5-83.311. Mounts cutting tools in machines and adjusts machines to produce a product as specified on blueprints, or like a sample of the required product, preparing machines for operation by the machine operator; selects knives that most nearly conform to required shape; reshapes knives, when necessary, by grinding; mounts knives in cutter head, locating them in accordance with blueprints or sample; mounts cutter head in machine; operates the machine to produce a specimen of finished product; checks the specimen with sample or blueprint; makes necessary readjustments to positions of knives in cutter head or to the machine set-up. May sharpen knives.

*MACHINIST II 4-75.010. Carries through to completion the construction and repair of all kinds of metal parts, tools, and machines; understands blueprints and written specifications; uses skillfully all machinist's hand tools including scrapers, chisels, files, and measuring instruments; operates all machine tools including lathes, milling machines, shapers, and specialized machines that have been developed from them. Possesses knowledge of shop mathematics, the use of charts and tables, the efficient planning of shop work, the dimensions and uses of standard bolts, screws, threads, and tapers; must be familiar with the working properties of such metals as aluminum, brass, cast and wrought iron, and various steels, and should be capable of shaping metal parts to precise dimensions within the close tolerances prescribed.

*MACHINIST, BENCH 4-75.120. Performs various duties involved in fitting and assembling machines, equipment, and subassemblies, using hand tools and machine tools, such as scrapers, drill presses, and arbor presses; assembles and fits parts together, using materials such as chalk or Prussian blue to show high spots and chisels, files, and scrapers to smooth and fit the parts; lays out position of holes to be drilled during course of assembling and drills the holes on a drill press; reams holes to accurate size; or broaches them to size; fits or matches the

various parts together and fastens them with screws, bolts or rivets.

*MACHINIST, MAINTENANCE 4-75.010. A MACHINIST II who uses various machine and hand tools to produce replacement parts and new parts for mechanical equipment operated in an industrial establishment.

*MACHINIST, MARINE GAS-ENGINE 5-83.642. Installs gasoline engines in power boats: hoists engine in place by means of a chain hoist; installs engine by setting long steel bolts through engine mounting holes and the wooden blocks beneath, setting a washer over the end of each bolt, and securing each bolt with a nut by means of a wrench; mounts gasoline tank by setting it on felt-lined cradle, putting steel straps around the tank and drawing the ends of the straps down tight by means of bolts; connects gasoline and manifolding and water lines; installs engine controls, propeller shaft and screw.

*MACHINIST, OUTSIDE 4-75.150. Installs such machinery in a ship as propelling machinery, steam, Diesel or electric auxiliaries, pumps, cargo-handling machinery, anchor-handling gear, ventilating and fire-fighting machinery, and steering gear; works from blueprint specifications, figures dimensions and, where required, lays out work; uses such hand and portable tools as calipers, micrometers and gages, files and electric drills, and may be required to use such machine shop tools as lathes, boring mills, planers, shapers, slotters, millers, and thread cutting tools. May repair ship machinery.

*MAGNAFLUX INSPECTOR 4-78.674. Inspects welded, forged, and machined steel airplane parts which have been set up by MAGNAFLUX OPERATORS, using magnetic inspection equipment known by the trade name Magnaflux: examines parts covered with iron filings or a solution of kerosene and iron oxide, using an electric light to facilitate inspection; tests defective welds by feeling the surface to determine whether the flaw can be removed by grinding; rejects faulty parts, indicating the flaws and defects on the parts with colored markings, and making out a rejection tag. May grind or file surfaces of parts to remove superficial defects.

*MAGNET WINDER 4-99.012. Winds insulated wire onto an insulated cylinder to make an electric magnet: slips a hollow cylinder over a mandrel in a lathe and fastens end of wire from reel to cylinder; starts lathe and winds on specified amount of wire by observing revolution counter; cuts wire and fastens end to cylinder; winds insulating material over wire and applies shellac; solders wire ends to ends of cylinder and removes magnet.

*MAGNETIC INSPECTOR 6-78.674. Operates a magnetic-testing machine to detect fractures and surface defects and to determine the soundness of metal parts, such as camshafts, piston pins, nuts, and bolts: (1) immerses parts in dipping chamber of machine that contains an iron oxide suspension; closes switch to send electric current through dipping chamber and deposit the iron particles on the parts at defective and fractured points (Steelscope method); (2) positions parts in chamber of machine so that they contact the electrodes; sprays an iron dust suspension over the parts, rotating the parts to insure distribution of iron dust over surfaces of parts; closes switch to send current through the parts to magnetize them so that the parts attract and build up iron particles at defective points (Magnaflux method). Removes parts from machine and examines them for defects indicated by thicker deposits of iron particles, rejecting those parts that do not meet specifications. May be specifically designated according to method used.

*MAINTENANCE MECHANIC II 5-83.641. A classification title for workers who keep machinery and mechanical equipment of an establishment in a state of good repair: examines machines for defects in operation, locating faulty part by listening to machine while it is in operation or by other methods based on his mechanical knowledge; dismantles or partially dismantles machine to gain access to defective part and removes part, using various hand tools such as wrenches, screw drivers, and pliers; repairs part, using hand tools, or obtains replacement part from stock; reassembles machine, making necessary adjustments to insure efficient operation; affixes special attachments, sets dies, oils and greases machinery, repairs belts, and performs other similar duties as necessary; moves heavy machine parts with aid of hoists and rollers. Is usually required to have a knowledge of the operation of machines he repairs.

*MAJOR ASSEMBLER 5-03.552. A classification title for jobs involving the assembly of major airplane units, such as wings, fuselages and tails.

*MAJOR-ASSEMBLY INSTALLER 5-03.572. A classification title for jobs involving the joining of major units to form the completed airplane.

*MASTER MECHANIC, MAINTENANCE 5-83.621. Supervises and assists CARPENTERS, MAINTENANCE; MACHINISTS, MAINTENANCE; MAINTENANCE MECHANICS; MILLWRIGHTS; and other workers engaged in the installation and repair of equipment and the maintenance of plant structure of a large commercial or industrial establishment. May advise and assist department foreman and PLANT ENGINEER in devising and improving production and maintenance methods.

*MELTER IV 4-91.444. Supervises the operation of a battery of open-hearth furnaces in which scrap iron is melted and purified, being responsible for the quality of steel produced; decides when each furnace is ready to pour by observing the color of the molten metal through cobalt-blue glasses and by referring to carbon tests of the metal made by the FIRST HELPER II.

MERCURY-CRACKING TESTER 6-54.033. Examines completed cartridge cases for cracks: cleans cases by dipping them in a solution of nitric acid and rinsing them in water; dips cases into a mercurous nitrate solution; heats chemically treated cases over a flame and looks for discolorations indicative of cracks; discards defective cases.

*METAL FINISHER, HAND FILING 6-77.530. Files with hand file the metal surfaces of objects to a smooth finish: inspects work visually and tactually to detect defects; files out defects by hand, exerting just enough pressure to remove the roughness and to avoid cutting through the metal; may hammer out grosser defects, using a hammer and dolly block; may pour molten solder in cracks or defects, allow it to cool, and file to a smooth finish.

*METAL-PROPELLER LAY-OUT MAN 4-75.141. Determines and marks centerlines on propeller blade forgings: blocks up forging on a bench, setting it at an angle prescribed by blueprint using a protractor; sets metal template in the centerline cut in the bench and positions forging on pattern using a square so that leading edge of the blade has a slight excess of material; inscribes temporary vertical line with a surface gage and measures width and thickness of the blade at the intersection of the vertical line and horizontal lines inscribed at regular intervals along the forging with calipers; if the average of metal is not balanced evenly on each side of the centerline at any station, clamps blade in a vise and bends it with a long, special lever until the metal is evenly distributed in thickness and width about that point; repeats operation at each station until the blade is uniform throughout its length; marks final centerline with a surface gage; may use a hydraulic press for bends requiring greater force; drills hole in tip of blade at the intersection of the horizontal and vertical centerlines with an electric-hand drill.

METAL-STAMPING INSPECTOR 6-94.218. Inspects and checks finished metal stampings for irregularities, indentations, and rough edges.

*METAL-TANK WORKER 4-84.030. Erects metal tanks for storage of liquids or gases, such as gasoline, oil, or fuel gas; usually works in a gang that travels from place to place: erects gin poles, derrick or other hoisting machine to hoist tank members into position; erects foundation; fits tank members together as they are hoisted into position; temporarily bolts together the various members; permanently rivets or welds plates together; calks seams. May paint tank after its erection.

*MILLING-MACHINE OPERATOR II 4-78.031. Performs shaping, planing, and grooving machine work on metal objects, using a machine that cuts the metal with many-toothed, rotary cutters: fastens work on table of machine with bolts or in a vise or special holding fixture; selects appropriate milling cutters and clamps them in machine; moves levers to select appropriate speeds of table feed and cutter rotation; turns handwheels to bring work into position under cutter; starts machine; engages power feed, or turns handwheels to feed work to cutter; stops machine and verifies dimensions of work; removes completed work from machine. May set up a dividing head on table of machine and use dividing head to obtain accurate spacing between cuts, as when machining teeth on gears.

*MILLMAN 4-33.914. Fabricates various lumber products, such as window and doorframes, sashes, and doors, using hand tools and woodworking machines, usually including molders, planers, shapers and hand or powered saws.

powered saws.

*MILLWRIGHT 5-78.100. Changes the lay-out and set-up of machines and mechanical equipment in a plant or mill wherein the machinery is usually of the heavy type, and keeps the machines and equipment in efficient operating condition: performs duties, such as dismantling, moving, installing, or repairing machines, power shafting, pulleys, conveyors, hoist, and other equipment; uses hoists, dollies, rollers and trucks to aid in moving machinery; uses wrenches, hammers, and other hand tools in erecting or dismantling machines and in installing new or repair parts; uses measuring devices, such as squares, micrometers, calipers, and plumb bobs in erecting machine foundations, in installing the machines and equipment in correct position, and in alining power shafting and pulleys. Is primarily concerned with installing, changing lay-out, and setting up machines, usually of the heavy type, rather than with keeping them in a state of good repair.

*MIXER OPERATOR VIII 4-52.472. Combines and mixes the basic chemical ingredients (nitrocotton, dinitro-toluene and solvents) of smokeless powder in a mixer: loads mixer with a specified amount of nitrocotton weighed out by COTTON-WEIGHER OPERATOR; weighs out specified quantity of dinitro-toluene; computes arithmetically the quantities of alcohol and ether and dumps them with dinitro-toluene into the mixer filled with nitrocotton; starts paddles to agitate the mixture for a specified period; pushes a lever to tilt mixer chamber, emptying mixed nitrocotton into containers; scrapes nitrocotton from walls and rotors of mixer.

*MIXER OPERATOR IX 6-52.487. Prepares various chemicals, such as asphaltum, barium peroxide, and magnesium for blending by COMPOSITION MAN to be used in the manufacture of pyrotechnic tracer shells: weighs out and dissolves asphaltum in carbon tetrachloride; pours out calculated amounts of barium peroxide and magnesium into separate containers and adds specified amounts of asphaltum solution to them; places containers in a mixing machine and starts machine to agitate the chemicals; screens the solutions in a special machine; dries the screened solutions by subjecting them to a constant temperature in an oven; rescreens the dried powders and weighs out specific quantities, pouring them into containers for further processing.

*MOCK-UP ASSEMBLER 5-17.240. Constructs and assembles the full-sized, wooden replicas of airplanes from which are made the sectional jigs used in production assembly: working from blueprints, prepares the basic "mock-up" frame from planks and timbers using various woodworking tools, such as the circular saw, lathe, planer and disk sander, and bolts the frame together; completes "mock-up" by fashioning parts, such as the frame ribs and longitudinal contour strips according to lay-out and fastens them in place with bolts, screws, or clamps.

*MODEL MAKER II 5-17.070. Makes first parts of gun, by hand, working to exact dimensions (these parts are then used to fit tools for mass production), and using any machine shop equipment.

*MODEL MAKER VI 5-17.130. Builds scale and full-size wooden models of marine equipment, such as gages, pumps, valves, and other auxiliary equipment to be installed in a scale or full-size wooden model of a ship: works from blueprints and completes the models in sufficient detail and accuracy to show the relative position of equipment so that clearance for hanging pipe lines and cables may be determined; uses woodworking hand tools, such as hammers, saws, planes, chisels, gouges, and mallets, and shop tools, such as band saws, circular saws, borers, drill presses, lathes, planers, routers, sanders, and shapers; checks measurements with calipers, rules, protractors, squares, and straightedges.

*MOLD CHECKER II 5-05.710. Checks and assumes responsibility for the dimensions and marking of molds (wooden or cardboard templates) used in the fabrication of ship parts: using blueprint figures and an ability for geometric visualization, accurately measures dimensions and checks the two-dimensional development of molds so that three-dimensional parts can be correctly fabricated from them; checks spacing and size of rivet holes; decides on and indicates any necessary alterations.

*MOLDER 7-10.014. Operates hydraulic presses to mold thermo-plastic materials (bakelite) into desired shapes: places bakelite, in powder form, into steam-heated molds in the press, to be heated to a plastic state; adjusts and alines the die on the ram with the mold on the press-bed; determines and adjusts length of stroke of the ram, to insure correct operation of the dies and molds; connects

steam and water lines to molds on press-bed; operates a lever which causes the ram, with a die attached, to descend into the plastic bakelite in the mold, and press the heated plastic material into the desired shape.

*MOLDER, BENCH 4-81.010. Makes molds on a bench by hand by packing and ramming green sand, dry sand, or loam around patterns which have been placed in suitable flasks; uses riddles, shovels, trowels, slicks, lifters, bellows, and mallets, in the handling, compacting, and smoothing of sand.

*MOLDER, FINISH 4-81.020. Assembles and repairs halves or sections of sand molds made by machine molders: sprays sections of mold with graphite solution and dries surface with torch; opens and cleans sprue and riser, using fingers, scrapers, and bars; punches holes, by inserting and withdrawing wires through sand of upper section of mold, to vent mold for escape of gas during pouring; repairs minor breaks in mold, using spoons and spatulas; assembles halves or sections of mold. May make sand molds on machines.

*MOLDER, FLOOR 4-81.030. Makes molds for bulky castings on foundry floor by packing and ramming green sand, dry sand, or loam around patterns which have been placed in suitable flasks; uses riddle, shovel, rammer, trowel, slick, lifter, bellows and mallet in handling, compacting, and smoothing sand; directs ELECTRIC-BRIDGE-CRANE OPERATOR in lifting, turning over, and shifting heavy flasks, molds, and patterns. May make symmetrical molds or sections of molds by the sweep method.

*MOLDER, LEAD 6-91.722. Draws refined molten lead from kettles through a pipe into molds to cast it into anodes (large, thick plates shaped for the electrolytic refining of lead): pulls lever to raise stopper in bottom of kettle of molten lead to allow it to flow through a pipe into an anode mold mounted on the edge of a casting wheel and closes stopper after mold is filled; repeats operation as each mold on wheel is brought into position; removes anodes from molds on wheel with a hooked rod; loads anodes into cars to be transported to storage piles or railroad cars, using a chain hoist.

*MOLDER, PATTERN 4-81.040. Casts metal patterns in aluminum, bronze, or other soft metals (the more durable metal pattern is used instead of a wood pattern when a large number of duplicate castings are to be made): makes one or more sand molds, using a wood pattern to form the mold impression of the metal pattern to be cast; pours molten aluminum, bronze or other nonferrous metal into molds with a hand ladle; machines metal patterns to exact dimensions. May make the wood patterns used to form the sand molds in which the metal patterns are cast.

*MOTOR ADJUSTER 7-02.357. Regulates carburetor, timing, and other motor adjustments, using hand tools, before or after block or dynamometer tests or after assembly in chassis.

*MOTOR ANALYST 5-81.620. Tests the operating efficiency of motors and determines the causes of faulty functioning and need of repairs: conducts tests on the engine, cooling system, headlights, carburetor and other parts, using special testing devices to obtain data on motor timing, cylinder compression, fuel consumption, headlight focusing, and other conditions; reads gages and meters on testing devices and ascertains cause of trouble by comparing readings with standard chart or interpreting readings according to his experience; reports findings to superior.

*MOTORCYCLE REPAIRMAN 5-81.020. Makes repairs or replacements on motor, frame, electrical system, wheels, and other parts of motorcycles and generally services motorcycles: in servicing motorcycles, performs such duties as checking oil pump and magneto wire, adjusting valves, oiling generator, refilling battery with distilled water, cleaning carburetor bowl, washing and adjusting chains, adjusting brakes, and tightening frame nuts and bolts; repairs broken and bent frames by hammering out dents or bends, and welding together broken parts; overhauls motor by removing it from frame, detaching external parts, such as carburetor, spark plugs, and magneto, removing cylinder heads, scraping carbon, grinding valves, and performing a variety of mechanical duties with the aid of wrenches, pliers, screw drivers, and other mechanics' tools; relines and adjusts brakes, repairs tires, paints frames, attaches accessories, and performs various other miscellaneous duties, such as alining wheels and lubricating motorcycle.

*MOUNTER IV 5-09.030. Mounts newly ground lenses for rimmed or rimless eyeglasses and makes repairs to old glasses: (1) in mounting lenses in metal frames: removes

endpiece screw from eye-wire, allowing joint to expand; bends eye-wire to conform to shape of lens; fits lens into eye-wire with axis in line with endpiece; adjusts endpieces until eye-wire fits snugly about perimeter of lens; inserts temple-piece in slot of endpiece and replaces screw to hold assembly together; (2) in mounting lenses in composition frames: compares diameters of lens and eyepiece to ascertain amount of stretching necessary to accommodate lens; rotates eye-wire about electrically heated mandrel, forcing it downward to increase its diameter; inserts lens in eye-wire, alining axis with endpiece; heats assembly over mandrel until eyepiece fits snugly about lens; immerses assembly in ice water to contract eye-wire about lens; attaches temple-pieces and polishes lens with a cloth; (3) in mounting lenses for rimless glasses: may drill holes in lenses; selects bridge and temple-pieces of proper size and order number and fastens lenses to parts with small countersunk screws or rivets; may thread holes in frame with a screw tap; adjusts mounted lenses until they are optically straight; (4) makes repairs to broken glasses, removing old parts and replacing them with new.

*MULTIPLE-SPINDLE-DRILL-PRESS OPERATOR 6-78.081. Performs such operations as drilling, reaming, and sometimes tapping on metal objects with a drill press equipped to rotate and feed several drills simultaneously.

*MULTIPURPOSE-MACHINE OPERATOR 6-78.292. Tends any one of several different types of automatic machines that perform a combination of two or more machining operations on metal parts, such as drilling, reaming, tapping, boring, facing, and chamfering: clamps parts to be machined in starting station of revolving table; may operate one or more levers to bring cutting tools into contact with parts if machine is not fully automatic (on automatic machines the tools advance, machine the parts, and withdraws as the table revolves); removes machined parts from table as they reach the finish station; may gage finished parts. The machine is usually set up by a JOB SETTER I.

N

*NIBBLER OPERATOR 6-88.626. Operates nibbler to cut steel plates of various sizes and thicknesses to irregular curves, where the plate must be cut cold and the line of cut is curved and cannot be cut with one stroke as with power shears: inserts cutting tool in machine and sets feed-roller control according to degree of curve and thickness of plate to be cut; slides plate on supporting posts adjacent to cutting tool of machine with the aid of a helper; raises holding roller by means of lever to allow plate to slide under cutting tool, clamping plate between holding roller and feed roller; starts machine by depressing pedal and guides plate by hand under reciprocating cutting tool which punches out holes along the line of cut.

*NITRATOR OPERATOR I 6-52.415. Tends a battery of nitrators in which cotton linters are mixed with nitric and sulphuric acid to form nitrocellulose, the basic ingredient of smokeless powder: at a given signal from the CHECKER, pushes a switch to start agitator blades revolving; turns valve to admit requisite amount of acid mixture to nitrator; upturns a weigh can containing a specified charge of cotton linters, and rakes them into a funnel, timing the process to insure instant submergence of the cotton in the acid (fire prevention); cleans equipment and surroundings to comply with safety regulations.

O

*ORDNANCEMAN 4-52.481. Performs a variety of duties in the assembling, storing, maintenance, inspection, experimenting with, and transportation of ordnance materials, such as guns of various caliber, primers, fuses, shells, mines, mine mechanisms, and aero bombs: checks, assembles, and disassembles guns and mounts of various calibers; gages, inspects, loads, and assembles shrapnel, star shells, primers, fuses, torches, detonatoes, torpedo impulse charges, and saluting cases; splices manila and wire rope used in handling heavy ordnance materials; assembles and overhauls mines and mine mechanisms, aero bombs and other ordnance materials involving explosives or firing mechanisms; loads mines, warheads (explosive head of torpedo), aero bombs, depth mines and net cutting bombs with trinitrotoluol; cleans, stores, and looks after ship torpedoes and all related parts; mixes, inspects, and loads fulminate and uses it in connection with other explosives; cares for, handles, stores, and ships trinitrotoluol, black powder, fulminate of mercury, gun cotton, and small arms ammunition.

*OXYACETYLENE-CUTTING-MACHINE OPERATOR 6-85.240. A term applied to a FLAME-CUTTING-MACHINE OPERATOR who uses acetylene gas to perform metal-cutting operations.

P

PAINT-SPRAY INSPECTOR 7-02.744. Inspects body and parts after each painting operation for smoothness, completeness, and texture, by holding a strong light at different angles to reveal defects; marks defects with chalk.

*PAINTER, BOAT, FINISH 5-27.110. Applies finish coat of paint and varnish to ship interiors and fittings: mixes paint and pigments to get desired colors; brushes surfaces with paint and varnish; putties or puts cement into cracks and holes; makes stencils of letters and designs and paints over stencils onto surfaces; directs PAINTER, BOAT, ROUGH in the painting of first coats and removing of old paint from metal boats, but usually removes paint from wood boats by use of blowtorch or paint remover.

*PAINTER, BOAT, ROUGH 7-27.110. Applies first coat of red lead or other coverings, such as cement wash, or bitumastic, to weather surfaces of ships and to bulkheads, using paint brushes to apply prepared coatings; scrapes old paint, sandpapers surfaces, and burns off old paint on metal boats only, with a blowtorch as directed by PAINTER, BOAT, FINISH.

*PAINTER, INSIGNIA 7-16.210. A PAINTER, SPRAY I who sprays insignia, numerals, and other designs on airplanes, using stencils and special adhesive paper to block-out unpainted areas; positions stencils to produce designs, as called for by blueprint, using ruler and pencil; applies decalcomania transfers. May paint insignia with brush.

*PAINTER, SPRAY I 7-16.210. Coats surface of manufactured articles with finished materials, such as paint, lacquer, stain, or porcelain glaze, using a spray gun: stirs coating liquid with paddle and pours it into container which may or may not be attached directly to gun; couples gun to air hose; starts compressor or opens valve in compressed air lines; regulates pressure by turning valves; adjusts nozzle of gun by turning adjusting sleeve; presses trigger, causing liquid to be atomized and sprayed from gun, and directs spray on surface; cleans gun and hose lines with a solvent. May touch up inaccessible spots with a hand brush.

*PARACHUTE BASTER 6-27.502. A SEWING-MACHINE OPERATOR who performs temporary sewing operations on parachutes, such as stitching together silk gores to form the parachutes, and sewing basting tape to the top and bottom edges of parachute canopies preparatory to hemming operations, using a power-sewing machine.

*PARACHUTE-COVER SEWER 6-27.502. A SEWING-MACHINE OPERATOR. Stitches together precut sections of cotton or canvas cloth to make parachute covers, using a machine equipped with a single needle.

*PARACHUTE PACKER 7-49.021. Repacks parachutes that have been opened in use, or unopened ones that are to be repacked in the interests of safety: draws canopy of parachute from the pack cover to its full length on the surface of a long bench; straightens the shrouds to eliminate coils or tangles; folds canopy lengthwise on its seams, one segment over the other; loops each of the shrouds and forces them into the retaining clips of the pack cover; folds the canopy in a fanfold arrangement and places in the pack cover; places pilot chute over the parachute canopy, forces the spring flat with the hands, and secures it in place with the rip cord; inspects buckles and harness straps for damage or wear. Must be licensed by the Federal Government.

*PARACHUTE REPAIRMAN 7-49.023. Sews and patches by hand and machine damaged parachute canopies; replaces defective shrouds, and splices connections between shrouds and harness, using hand tools. Must be licensed by the Federal Government.

*PATTERN-AND-FOUNDRY INSPECTOR I 5-17.257. Inspects wood and plaster patterns and metal dies: examines patterns and dies, measuring dimensions with instruments, such as calipers, micrometers, and sight levels, comparing the measurements with blueprint specifications; inspects patterns for shrinkage allowance, using a shrink scale which automatically compensates for shrinkage in the die metal; measures draft angle (angle required so that the pattern may be removed

from the molding sand) to ascertain that it is within specified limits; inspects metal dies in use to detect wear and distortion.

*PATTERNMAKER XI 5-17.248. Builds patterns of plaster, clay, or other materials for use in making open sand molds from which dies and airplane parts are cast: determines from blueprint and work order the methods to be used in making the pattern and the number and kinds of templates needed; lays out templates on sheet metal stock and gives directions for the machining of the metal; assembles templates and cuts wooden frame parts to size, combining the two to form a framework (jig or modeling board) to receive the clay or plaster; tacks open mesh wire to the frame and spreads clay or plaster over the mesh, smoothing it to exact blueprint dimensions with hand tools to complete the mock-up; spreads a mixture of hemp and plaster thinly over the mock-up to form a splash cast; makes die patterns from the splash cast.

*PATTERNMAKER, METAL 5-17.010. Performs all machine operations on rough metal castings designed for use as metal patterns or core boxes, such as milling, boring, drilling, grinding, and lathe turning; performs all hand finishing operations on casting by filing, filling in low spots with solder, and sometimes painting the casting with aluminum paint; occasionally joins several patterns by soldering to a common gate (brass strip) so that several castings can be poured at one time; checks result with calipers, limit gages, depth and surface gages, micrometers, steel scales (rules), squares, and straightedges, in order that pattern conforms to the drawings or blueprints; may make sweeps (templates for use in making molds for symmetrical castings or for castings, portions of which are symmetrical).

*PATTERNMAKER, WOOD 5-17.020. Builds wooden patterns, core boxes, and match plates according to dimensions shown on blueprints by gluing, nailing, screwing, sawing, planing, sanding, and painting, using hand tools, such as saws, planes, chisels, gouges, and mallets, and shop machines, such as band saw, circular saw, borer, router, lathe, planer, drill press, sander, and shaper; checks results with calipers, rules, shrinkage rules, protractors, squares, straightedges, and other measuring instruments; may make sweeps (templates) for making molds by sweep-molding method.

*PELLET-PRESS OPERATOR 6-54.020. Operates a press to form pellets from previously blended powder for use in tracer shells: rubs graphite onto table plate and bottom of feed chute of machine; alines dies and punches of machine, and regulates punches to produce desired sized pellet by adjusting the cog wheels to which the punches are attached; fills machine hopper with powder and manipulates a fly wheel to make a sample pellet; weighs pellet on balance scale and determines its size with micrometer; makes necessary adjustments to machine to produce pellets according to specifications; operates press by remote control due to fire and explosion hazards; cleans machine using rags, brushes, and turpentine.

*PIERCING-MILL OPERATOR 6-88.351. Operates a piercing mill to pierce steel billets, preparatory to drawing and expanding operations in the production of seamless tubes: manipulates a series of levers to kick billet into rolls and force a ram against billet which is pushed against a pointed steel bar that pierces billet; pulls a lever to actuate an air cylinder that automatically removes pierced billet from pointed steel bar; manipulates lever to carry pierced billet onto a conveyor that transports billet to next operation.

*PIPE ASSEMBLYMAN 5-30.030. Builds up sections of steel pipe and fittings for installation on ships, using drawings or pipe targets (wooden patterns mounted in the same relative positions as the pipe ends to be joined by the assembly): studies drawings and chalks out on the floor a plan of the assembly; blocks up and braces pipes in the desired positions, checking dimensions against the drawings with rule, square, and plumb line; screws and bolts the various fittings to the pipe, positioning some for welding; in similar manner, assembles sections to fit pipe targets; may heat with a torch and manually bend small pipes; may thread small pipes with hand dies; may mount and convert instruments on panels with small fittings and copper tubing.

*PIPE FITTER 5-30.010. Installs, bends, cuts, and threads air, water, and gas pipe and fittings: locates position of pipe by measuring; cuts holes in walls or floors with an ax, saw, or drill; bolts or length with chisel and hammer, or oxyacetylene torch, and small pipe with pipe-cutting machine; threads pipe with stock and dies; bends pipe by hand-driven or power-driven machines; assembles

pipe with couplings and fastens pipe to hangers; if pipe has flange fittings, places gasket in flanges and bolts pipes together; calks pipe, makes hydrostatic pressure tests of complete work.

*PIPE FITTER II 5-30.015. Checks prefabricated wire templates of pipe assemblies by fitting them in place and installs and tests completed assemblies: working from blueprints, positions templates and checks them for fit and clearance, adjusting design if necessary to clear unforeseen obstructions; designs and sketches small pipe assemblies that cannot be pre-designed by architects; with the aid of helpers, fits pipe assemblies into place and screws and bolts them together; screws and bolts fittings as necessary to tanks, pumps, and other equipment; subjects installed assemblies to hydrostatic pressure to detect leaks.

*PLANER OPERATOR II 4-78.071. Machines plane surfaces of large metal objects with a machine that carries the work on a moving table beneath rigidly supported cutting tools: adjusts work on planer table and clamps or bolts it securely; selects one or more cutting tools and clamps them in tool holders on machine; moves table slowly by power or by hand and sets reversing dog trips to reverse the direction of table at each end of the stroke; turns handwheel to raise or lower cross rail until it is in position to afford most rigid support to tool heads while still clearing the highest part of the work; clamps cross rail in position; turns handwheels to bring cutting tools into position for beginning cut; turns on motor; moves starting lever and engages automatic feed that moves cutting tool into or across work at end of each stroke; observes operation of machine; stops machine and measures work to check dimensions; adjusts position of work on table and cutting tools as work requires.

*PLANER OPERATOR IV 4-33.461. Sets up and operates a single or double surface planer which cuts a smooth surface on rough stock and reduces it to desired thickness: (1) selects knives and fits them into cutter head, using hand tools; turns handwheel to adjust table for depth of cut and to thickness of unplaned stock; adjusts pressure bar to hold stock firmly against knives; inserts one end of stock between feed rolls and guides it through machine; measures planed stock and makes necessary adjustments; resets machine, turns stock over and re-runs it through machine to surface other side and reduce it to desired thickness; (2) turns handwheels to adjust table and distance between upper and lower cutter heads to thickness desired in finished stock; sets stock into feed rolls and runs it through machine; may reset cutters and re-run planed stock through machine to further reduce its thickness; starts finished pieces on hand truck or supervises a PLANER OFF-BEARER.

*PLANT WIREMAN 7-53.020. Places cross-connections at central office wire-distributing frames and at outside cable terminals located in buildings or on poles; places and removes outside service wires and makes connections at cable terminals incident to new cable construction operations.

*PLASTER-PATTERN CASTER 5-17.250. Casts and finishes plaster patterns used in making sand molds for dies, tools, and machine parts, according to specifications: constructs a box-like enclosure around the pattern, filling in cracks and openings with clay; lubricates pattern surface with a special compound to prevent plaster from sticking to pattern surface; mixes plaster and pours it into enclosure; reinforces plaster with hemp fiber and small steel rods or heavy wire; removes hardened plaster cast from pattern; patches broken edges and fractures, using clay or plaster; finishes plaster pattern by scraping and shaping the plaster surfaces by hand, using flat metal scrapers and various measuring instruments and gages; makes identifying marks on pattern with crayon, inked rubber stamps, or a pointed tool; shellacs finished surfaces to harden and smooth them.

*PLATE-EDGE-PLANER OPERATOR 6-78.071. Sets up and operates a metal-planing machine specifically designed to bevel or square the ends of steel plates: clamps appropriate cutting-tool in machine; lifts, positions, and clamps plates on machine bed with the aid of helpers and chain hoists as necessary; starts machine and observes its operation as the tool carriage advances and retreats along the edge of the plate, making necessary hand feed adjustments so the machining is accomplished as specified.

*PLATE HANGER 6-84.130. Puts ship plates in place on the frame of a ship, bringing the rivet or bolt holes in line to make them ready for the BOLTER-UP, using mauls, wrenches, and drift pins.

*PLATER I 4-74.010. Covers metal objects electrolytically with a coating of nickel, gold, or other metal that can be buffed and polished to a bright and relatively rust-proof finish: cleans objects by immersing them in a succession of cleaning baths; immerses cleaned objects in a vat or tank containing a solution of metallic salts of the plating metal; connects negative terminal of plating equipment to objects or container holding objects, or fastens hooks to objects and hangs them on negative electrode; fastens stick or plate of silver, nickel, or other plating metal to positive terminal (if this method of plating can be used); allows objects to remain in tank until desired thickness of coating is obtained, regulating electrical controls to maintain the desired intensity of electricity flowing through the plating solution; removes metal objects from tank and rinses them in water. May dry objects by hanging them in air or rolling them in sawdust; may mix plating solution.

*PLEXIGLAS FORMER 5-77.040. Cuts and forms, for installation on airplanes, sheets of plastic glass known by the trade name Plexiglas: places template in various positions on the sheets, marking cutting lines with a knife; cuts cut parts along inscribed lines, using a power saw; determines the temperature to which the plastic should be heated for satisfactory forming and sets the oven temperature control accordingly; removes protective covering from plastic pieces and places them in an oven; removes the heated pieces from the oven and shapes them over a form block, in an airmold, or in a press, using his knowledge of the plastic and of the forming operations to secure the desired shape; places formed plastic pieces in a jig and works edges for trimming; saws off excess plastic remaining at the edges and grinds them to a smooth finish; removes scratches by sanding and polishing with rouge.

*PLUMBER I 5-30.210. Assembles and installs air, gas, water, and waste-disposal system: cuts openings in walls for pipes; bends pipe over blocks by hand; cuts, reams, and threads pipe; calks joints; pours molten solder over joints and spreads and shapes solder with a cloth; tests joints and spreads and shapes solder with a cloth; tests joints and pipe system for leaks by filling pipe with water under pressure and checking with a gage for a fall in pressure; installs gas, water, and sanitary fixtures and equipment with their supports, hangers, or foundations.

*PLUMBER II 5-30.260. Lays out, assembles, and installs pipe, fittings, and fixtures for sanitary, heating, drainage, and other nonpropulsion systems in vessels, performing duties as described under PIPE FITTER II, and lines battery boxes, steel pipes and other articles used in salt water systems with lead to prevent corrosion: cuts lead pipe which is smaller in diameter than the pipe to be lined, using a hand or power saw; inserts lead pipe into steel pipe, plugs ends of lead pipe with special fixtures, and screws air pressure connections to the fixtures; turns on air pressure that expands the lead pipe and presses it firmly against the steel pipe; hammers lead pipe over ends of steel pipe so that ends will not corrode; covers battery boxes and other articles with lead by cutting sheet lead to appropriate sizes, hammering lead about the edges of the article until it is snug against the object, and soldering the edges and joints together to completely cover the item.

*PLUMBER, AIRCRAFT 5-03.562. A SUBASSEMBLY INSTALLER I. Installs gasoline lines, oil lines, instrument tubing, electrical conduit, and other piping, such as de-icer and engine plumbing in aircraft, using hand tools: marks holes and location of clamps and connections on aircraft frames according to blueprint specifications, using a ruler and crayon; drills holes for clamp mountings with an electric drill; cuts tubing with a hacksaw to the proper lengths and bends it in a jig or by hand to fit into place; bends larger pipe in a bending machine by clamping piece between mandrel and roller of the machine and pulling a lever; flares ends of tubing, using a flaring tool and a hammer, for making connections; beads end of tubes for rubber hose connections using a special hand tool; elongates and tapers tube and using an electric wedging machine; uses screw drivers, pliers, and wrenches to clamp pipes onto the frame and make connections to tanks and valves, but does not make connections to the instruments, motor equipment, and other actuating equipment; installs electrical conduit but makes no connection to junction boxes or to any electrical equipment.

POLISHER II 6-77.060. Polishes metal articles by holding the articles at various angles against a rotating emery-coated, cloth wheel until all surfaces are uniformly polished; selects proper polishing wheel for type of finish desired (coarse or fine); applies tallow wax or other wheel-dressing compounds to wheel to aid in

polishing; polishes those parts of the articles that cannot be reached by the wheel by rubbing with emery cloth.

*POWDER-CUTTING OPERATOR 6-52.433. Cuts long strands of smokeless powder into grains of different size to produce explosives having uniform ballistic properties: adjusts the speed of the cutting machine's feed mechanism to cut grains of a specified size; feeds long flexible strands of colloidal smokeless powder through guide holes; adjusts a stream of liquid coolant, such as alcohol or water, to play on point where powder is being cut to prevent the outbreak of fires; empties fiber containers filled with cut powder into a cart.

*POWDER-STACKING-MACHINE OPERATOR 6-52.455. Fills small silk bags with uniform quantities of large grains of smokeless powder (short, cylindrical sticks), using a powder-stacking machine to aline the individual grains within the bags: dumps powder into machine hopper; jiggles a lever to aline individual cylinders of powder in a perforated board; examines board to make sure all receptacles are filled; positions empty bag under filled board and withdraws removable bottom, allowing powder to drop into bag.

*POWER-TRANSFORMER ASSEMBLER 4-99.172. Works as a member of a group who puts together power-line transformers: attaches such parts as terminals, lead supports, wires, variable-ratio controls and other parts to the spiral or laminated cores, tank and tank covers according to specifications; places cores in tanks with the assistance of other workers or a chain-hoist; uses various tools, such as hammers, wrenches, pliers, screw drivers, and soldering iron.

*PRECISION LENS GRINDER 5-08.071. Makes prisms, mirrors, and lenses used in military optical instruments; grinds and polishes lenses to the Newton ring test; corrects and polishes prisms including roof edge prisms; corrects and polishes optical parallel plane mirrors.

*PRIMER ASSEMBLER 6-54.053. Completes the assembly of cartridge primers by pressing the primer anvils (firing pins) into loaded primer cups with a hand-operated toggle press: using a special fixture (transfer plate), superimposes the anvils, received from the ANVIL-PLATE FILLER, over a corresponding number of inverted primers, received from the CUP-PLATE FILLER; forces the anvils into the cups by placing the assembly under the ram of a press and pulling a lever; removes transfer plate and shakes the primer loose; frequently cleans the machine and work area to prevent the accumulation of powder that might become ignited.

*PRIMER-INSERTING MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Makes minor repairs and adjustments to a battery of machines that punch vent holes in cartridge cases and insert primers into the holes: uses hammers, pliers, screw drivers, files, special wrenches, and other tools to adjust and replace parts, such as feeler punches, primer seating mechanisms, and dies; uses a gage to determine whether or not the primer head is set to the correct height.

PRIMER INSPECTOR 6-54.036. Examines cartridge primers for such defects as lack of powder, improperly inserted anvil (metal piece covering the cap), and other defects using a magnifying glass; removes faulty primers with tweezers.

*PRISM MEASURER 5-08.065. Determines the angles of prism facets, using a protractor and steel scale: ascertains the optical properties by passing parallel rays of light through the prism and observing the light displacement.

*PRODUCTION CLERK II 1-18.66. Keeps a record of the number and types of units produced, and makes up production schedules from sales orders, showing the number and type of units to be produced. May estimate the rate of production, informing the shop the time when production is to be completed. May keep a record of the amount of material used. May operate an adding machine and a calculating machine.

*PROFILING-MACHINE OPERATOR I 4-78.111. Sets up and operates a special milling machine that follows the contours of a model or template to reproduce articles of complex shape automatically: places cutting tools and work in machine and adjusts cutting speed of machine; clamps a model or template for the object to be made on a fixture attached to the machine; fastens a tracing finger of the same dimensions as the milling cutter on a secondary or tracing spindle of machine; turns handwheels to bring tracing finger into contact with template and milling cutter into contact with work; starts machine; observes operation of machine; stops machine from time to time to measure work or to change milling cutter;

removes work from machine when completed.

*PROFILING-MACHINE OPERATOR II 6-78.111. Duplicates in metal the broad outlines and the fine details of a pattern by use of a profiling machine which has been set up by another worker, usually a JOB SETTER II: directs cutting action on workpiece by moving a guide pin, which is synchronized with the cutting tool, over a pattern; gages cut with calipers, micrometers, and verniers; may make minor adjustments; consults foreman when important adjustments are necessary. Does not set up machine or make major adjustments.

*PROFILING-MACHINE OPERATOR III 6-78.112. Trims excess metal from edges of flat or formed airplane parts in accordance with templates: selects profile blocks corresponding to contours of part and clamps part between blocks; adjusts cutter and starts machine; grasps the clamped profile blocks with both hands and manipulates it against rotating cutter to trim excess metal.

*PROPELLER INSPECTOR 4-78.671. An INSPECTOR who checks the machining, chipping, grinding, and polishing of ship propellers to make certain they conform to specifications: checks the initial set-up of the draw-cut shaper used to machine the propellers; uses precision instruments and gages to check dimensions of all parts; has propellers mounted and rotated and checks vibration by gages attached to the bearings; ascertains blade out of balance, decides the amount of metal to remove, and directs the regrinding operation; may check the matching joints of armor plates with feeler gages to see if they come within the tolerances allowed.

*PROPELLER-INSTALLATION ASSEMBLER 5-83.562. A SUBASSEMBLY INSTALLER I. Puts together and installs fixed and variable-pitch propellers (including hydromatic, electrically operated, and full-feathering types) on aircraft engines using wrenches, pliers, and special tools; cleans all parts in solvent and examines each piece for flaws before installing; hones or files battered and roughened threads; adjusts and alines pitch control mechanism with special tools; lifts propeller in mounting position with a chain hoist and sling; mounts assembled propeller by alining splines on shaft and hub and fastening on hub nut with a special wrench; attaches streamlined nose piece of propeller (spinner or dome) to doweled mounting and tightens dome-lock ring with a special wrench; examines pitch range settings of propeller by turning the blades by hand and comparing the marks on propeller hub and blade; adjusts and fastens tubes for throwing de-icing fluid from the propeller hub over the blades, using hand tools.

*PROPELLER MECHANIC 5-80.130. An AIRCRAFT-ENGINE MECHANIC who specializes in dismantling, inspecting, and servicing all-metal, fixed-pitch and controllable-pitch aircraft propellers: dismantles controllable-pitch propeller by removing castellated nuts, lifting outer half of hub from the inner, and removing the propeller blades from the retaining channel therein; loosens retaining nuts and removes counter-balances; thoroughly cleans all parts with mineral spirits and subjects to critical inspection for wear or damage; reassembles the unit and oils and greases those parts that require lubrication; tests the propeller for balance on a balancing stand with a spirit level, and makes it balance by filing the edges of the heavier blade.

*PULPIT MAN II 4-88.012. Operates the complex controls of a rolling mill, in which iron and steel ingots or billets are rolled into such shapes as bars, T's, rails, and sheets, by throwing the correct electric switches when signaled, or by personal observation: watches rolling process closely to obtain smooth mill operation; starts and stops various motors that drive the rolls between which iron and steel is passed to shape it or reduce it to specified thickness, constantly watching for any emergency signals.

*PUNCH-PRESS OPERATOR I 6-88.622. Operates a power press to punch holes in light metal stock for rivets, nails, screws, bars, or other purposes; sets measuring guides or stops for holding material in correct position under punch die; inserts metal under punch or punches and against guides; starts machine, causing upper punch or punches to descend and punch out holes. May set up and lock proper sized punches and dies in machine.

PUNCH-PRESS OPERATOR, AUTOMATIC 6-88.624. Tends one or more automatic punch presses that punch holes in light metal stock by the action of appropriate dies: threads strip of metal through guide rollers, or loads hopper with metal articles; starts machine and watches operation as machine automatically feeds metal to dies. Machine may also cut metal strips to correct length.

PUNCH-PRESS OPERATOR, HAND 6-88.625. Punches holes in sheet metal parts with a hand operated bench punch: installs proper sized punch and die in machine; lays part on die in machine and shifts part until lay-out mark is under point of punch; steadies part with one hand and pulls lever with other to force punch through metal and cut hole. May measure and mark location of holes on the metal parts.

*PUTTEEING-MACHINE OPERATOR 6-52.456. Wraps several bags of powder, that have been previously stitched together, with cloth tape to form a single charge of uniform thickness: lays sewn bags in horizontal channel of machine carriage; wraps end of cloth tape around end bag and closes machine cover to completely enclose the cylinder; starts machine and guides tape along length of cylinder as bags are rotated; stops machine when cylinder is completely wrapped, cuts tape with scissors, and tucks under loose end; removes wrapped charge.

*PYROMETER MAN II 6-91.585. Tests temperature of furnaces with an instrument known as a pyrometer to determine whether molten metal is at proper temperature for pouring into molds to make castings or whether proper temperature is being maintained for heat treating of metals; advises regulation of oven or furnace to proper temperature; adjusts and checks pyrometers to keep them in accurate working condition.

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*RADIAGRAPH OPERATOR 6-85.240. A FLAME-CUTTING-MACHINE OPERATOR who operates a machine known as a Radiagraph to cut long straight lines, and to cut arcs or complete circles at square or beveled angles in steel plates: makes straight cuts by clamping templates to the metal and guiding the cutting torch in accordance with the template; cuts arcs or circles by attaching a radius rod to the machine and pivoting it with an adjustable center point inserted in a center-punched hole on the metal; cuts irregular outlines by manually guiding the torch adjusting arm; makes two parallel straight lines or cuts two concentric circles at one time by attaching and adjusting a special two-torch holder unit to the machine.

*RADIAL-DRILL-AND-ROUTER-TABLE LOADER 6-94.222. A SHEET-METAL LAY-OUT MAN IX who marks guide lines on sheet metal for RADIAL-DRILL OPERATORS III and RADIAL-ROUTER OPERATORS, according to specifications: positions template or router blocks on sheet metal, securing pattern in place with lead weights or clamps; marks guide lines so that maximum number of parts can be fabricated from the sheet metal; stacks sheet metal on machine table so that specified number of parts can be obtained from machine operations; alines stack of sheet metal, drills holes through stack with an electric hand drill, and pounds large-headed nails through the holes to hold the stack in position for the machine operators.

*RADIAL-DRILL-OPERATOR III 6-78.082. A RADIAL-DRILL-PRESS OPERATOR who bores holes in stacks of sheet metal in accordance with templates: piles sheet metal on drill table until stack reaches desired thickness for drilling, alines sheets and positions working template on stack, and secures template in place with lead weights if this is not done by RADIAL-DRILL-AND-ROUTER-TABLE LOADER; starts machine and drills holes in stacked sheet metal as indicated by guide holes in template; changes drills in machine according to type and size of hole required.

*RADIAL-DRILL-PRESS OPERATOR 6-78.082. Performs such operations as drilling, and reaming, with a large drilling machine, the drill spindle of which can be brought to bear anywhere within a large arc by moving the drill assembly along a horizontal, radial arm and swinging the arm about its anchorage: fastens drill, reamer, or other tool on spindle of machine; places or fastens work on drill table; alines drill over work, and starts machine; pulls hand lever to feed tool to work or engages automatic feed; withdraws tool from work and stops machine.

*RADIAL-ROUTER OPERATOR 6-94.226. Shapes sheet-metal blanks with a radial-routing machine, using steel patterns fastened to wooden blocks (router blocks) as guides: directs RADIAL-ROUTER OPERATOR HELPER in positioning patterns on stack of metal blanks, if this is not layed out by RADIAL-DRILL-AND-ROUTER TABLE LOADER, and checks the placement of the patterns for conformity to specifications; using calipers and rulers.

*RADIO-CHASSIS ALINER 4-98.040. Adjusts completed radio chassis to obtain proper electrical frequencies: connects chassis to testing equipment; adjusts position of iron core in each intermediate frequency stage successively, using a neutralizer (type of socket wrench); adjusts with screw driver or wrench, the trimmer condensers of radio frequency stages for maximum response in headset or on meter.

*RADIO-EQUIPMENT ASSEMBLER, SPECIAL 4-98.050. Assembles special radio equipment in chassis of radio, such as metal cases around certain types of glass tubes to act as a shield against outside interference: drills and taps holes, working from blueprints; mounts instruments, and solders and splices connections.

*RADIO MECHANIC II 5-83.447. Inspects, adjusts, and repairs medium and low-powered radio transmitting and receiving equipment: tests radio equipment, using instruments, such as ammeters, voltmeters and tube testers; replaces defective tubes, condensers, and generators, solders or tightens loose connections, cleans and lubricates motor-generators, tests and charges batteries, and performs other similar repair and maintenance duties; routes parts requiring major repairs to radio repair shop; adjusts receivers for sensitivity and transmitters for maximum output by turning set screws.

*RADIO MECHANIC, AIRCRAFT INSTALLATIONS 5-83.447. A RADIO MECHANIC II who inspects, adjusts, and repairs aircraft radio sets: tests and replaces defective radio instruments, such as radio compass and marker beacon receptor; adjusts frequencies of radio sets by signaling a ground station and turning set screws.

*RADIO OPERATOR 0-61.30. Controls the operation of and adjusts all the equipment associated with the transmitter of a radio station and assumes responsibility for compliance with federal regulations: starts and shuts down transmitter; adjusts tone quality and volume of radio program, listening to it through a loudspeaker or headphones and observing volume indicators; keeps a complete operating log as required by the federal regulations. Must hold a federal license.

*RADIO REPAIRMAN I 5-83.411. Repairs defective radios: tests circuits, tubes, and other parts, using various testing meters and devices; isolates defects, and either fixes them or replaces defective parts with new ones; resolders loose connections.

*RADIO-TRANSMITTER ASSEMBLER 6-98.310. Puts together the component parts of radio transmitter sections, and mounts and interconnects wired sections to form complete radio transmitters: solders parts, such as coils, condensers, and transformers, to metal chassis, or bolts and screws them in place, using hand tools, such as screw drivers and soldering iron; installs previously wired sections in transmitters and solders cables to sections to connect them together; mounts front panels, dials, and control knobs; makes mechanical adjustments to parts, such as tuning dials and switching relays; may wire assembled sections by soldering cut and formed wires into place; may form cables by lacing soft wires together with waxed twine.

*RECEIVER TESTER 4-98.060. Checks completely the assembly, wiring, and parts of radio receivers and adjusts receivers to meet specifications, using a variety of measuring and testing instruments: studies blueprints and specifications and decides on testing procedure; makes inspection for mechanical defects, prodding and twisting parts for looseness; makes continuity test of wiring, using buzzers and meters to check for open circuits, short circuits, and incorrect wiring; measures tube voltages and determines and adjusts any faults; uses special instruments, such as test oscillators, oscillographs, output meters, frequency meters, and earphones, to make highly complex adjustments, such as alining intermediate and radio-frequency stages and synchronizing the tuning condensers so they may be operated by a single control; takes instrument readings and plots curves over frequency ranges; checks features, such as automatic volume control and rejection of unwanted signals; may locate causes of trouble and correct by repairing, rewiring, or replacing parts.

*RECTIFIER OPERATOR I 6-52.714. Operates a rectifying column, used in the refining or purification of liquids by distillation: follows closely the temperature recordings of vapors rising from the still, and entering the column, leaving the column and entering the condenser; regulates reflux ratio; samples condensate and checks with control laboratory for correct specification; works in close coordination with STILL OPERATOR; adjusts and makes minor repairs to equipment.

*REVERBERATORY-FURNACE OPERATOR 4-91.441. Charges, fires, and tends operation of a reverberatory furnace in which metals are melted to be used in making castings: charges metal (pig or scrap) into furnace by hand or with assistance of ELECTRIC-BRIDGE-CRANE OPERATOR; lights burner and regulates air and gas, oil, or pulverized coal valves to control length of flame and degree of heat; observes melting and determines temperature from color of molten bath or by use of pyrometer, when metal is ready for pouring; skims slag from surface of molten metal and releases plug in tapping spout to allow metal to run into ladle; patches lining of furnace with fire clay as needed.

*RIB ASSEMBLER 7-03.542. A DETAIL ASSEMBLER I. Assembles precut sheet metal parts and metal tubing in a jig to make airplane ribs: positions fabricated sheet metal parts and tubing in their appropriate places in the jig according to instructions; temporarily fastens parts together with metal pins preparatory to riveting; reams out drilled rivet holes with a portable electric drill.

*RIB-FRAME BUILDER 7-03.542. A DETAIL ASSEMBLER I. Assembles the members of airplane wing rib structures in a jig, and temporarily secures them in position with bolts, screws, or tack welds prior to the final assembly, gluing, riveting, or welding operations.

*RIB STITCHER 7-03.010. A SEWER, HAND XVI who stitches fabric covering and reinforcing tape to airplane parts, such as ailerons, rudders, and elevators by passing the needle around the ribs of the part; ties a knot in the thread at the top side; trims reinforcing tape, using scissors.

*RIGGER IX 5-03.572. A MAJOR-ASSEMBLY INSTALLER. Installs the cables that connect airplane cabin controls to ailerons, rudders, and fins: connects one end of cable to flying control by hooking cable eye to clamp on control; threads cable through pulleys in wings and fuselages; connects free end of cable to central control column with clamps or links; adjusts length of cables by setting controls at neutral and tightening the cable turnbuckles to equalize the tension on the control cables; tests adjusted cables with a tensiometer. May install pulleys in wings and fuselages, locating them according to blueprints and drilling and threading the necessary holes.

*RING WELDER 4-85.060. A WELDER, ATOMIC who builds a ring used in clamping the blade in a hub around the shanks of propeller blades, using a welding rod of the same metal or alloy as the blade, and a special welding jig which rotates the blade so that the ring can be applied in one continuous weld.

*RIVET-MACHINE OPERATOR 6-93.195. Tends a machine which forms rivets from spools of wire: sets dies for type of rivet desired; regulates stroke of machine for length of rivet; threads rivet wire into machine from rotating spools which unwinds as rivets are formed; may make repairs and adjustments to machine while in operation.

*RIVET TESTER 6-84.450. Taps each rivet with a small light hammer to determine if rivet is driven tight. May supervise the movements and operations of several riveting gangs.

*RIVETER V 4-84.060. A RIVETER, PNEUMATIC II who cuts off the formed heads of rivets with a pneumatic chisel according to specifications and rounds or flattens them with a rivet gun.

*RIVETER, AIRCRAFT 6-95.080. Joins together airplane structural members, assemblies, subassemblies, and small parts of aluminum, stainless steel, aluminum alloys, or other metals with various kinds of rivets; drills and reams rivet holes in metal, inserts rivets and forms the rivet head using hand rivet sets and hammers; pneumatic riveting hammers; and riveting machines. May buck own rivets or be assisted by BUCKER-UP IV.

*RIVETER, ANGLE 6-95.074. A RIVETING-MACHINE OPERATOR IV who reinforces the baffle plates of airplane fuel tanks so that they will be sufficiently strong to support the tank shell, by riveting angle braces to the baffle plate flanges.

*RIVETER, HAND IV 6-95.081. Joins together prefabricated airplane parts to make complete units; such as wing ribs and fuel tanks, using a rivet set and lightweight hammer: alines parts and inserts rivets in predrilled rivet holes; places rivet set against shank and strikes it with the hammer to spread the shank and secure the parts together. May buck own rivets or direct a BUCKER-UP IV in doing so. May drill rivet holes or drill out defective rivets, using a portable electric drill.

*RIVETER, HYDRAULIC 6-84.620. Operates a riveting machine actuated by a hydraulic piston to rivet together sections of steel plates for boilers, locomotives, or ships: selects and sets up in machine riveting dies for size of rivet to be used and head to be formed; hoists plate into position between dies by means of an overhead hoist and lines up rivet holes and rivet die; regulates pressure to be exerted by dies on rivet according to size of rivet; moves lever that causes piston and die to move forward under hydraulic pressure, and clinch the hot rivet, previously placed in rivet hole by RIVETER HELPER, HYDRAULIC.

*RIVETER, PNEUMATIC I 6-84.640. Rivets together machine parts, or boiler and other steel plate, with a pneumatic hammer, following blueprints of rivet layout: inserts die in head of hammer that corresponds with size of rivet head; places die against shank of rivet held in hole by BUCKER-UP II and presses trigger, causing die to pound and shape head on rivet shank and thus clinch parts or plates together; may heat rivets in a gas furnace. May clamp fixture over rivet head to hold rivet in position while shaping shank, instead of having rivet held by BUCKER-UP II.

*RIVETER, PNEUMATIC II 4-84.060. Fastens together with rivets structural-steel members, such as girders, columns, and plates, by spreading the rivet shank and shaping the head with a pneumatic hammer; reams misalined rivet holes with electrically driven or hand reaming tool.

*RIVETER, PNEUMATIC III 6-95.082. Joins the metal skin to the skeletons of airplane assemblies and subassemblies, such as tails, fuselage sections, and ailerons, using a pneumatic riveting hammer: inserts rivets in appropriate predrilled holes, or directs BUCKER-UP IV to do so, removing temporary bolts or fasteners as necessary; places the drive head of the pneumatic hammer against the rivet shank and pulls trigger to actuate hammer that spreads the rivet, stopping on signal from the BUCKER-UP IV or when the sound of hammering indicates the rivet is spread. May buck as well as drive the rivets, and may spread rivets located in difficult positions using a special riveting gun that usually forms rivet heads with one stroke of the riveting hammer. May drill necessary rivet holes before inserting the rivets, or drill out defective rivets, using a portable electric drill.

RIVETING-MACHINE OPERATOR IV 6-95.074. Operates a riveting machine to rivet together parts of various articles: fills hopper of machine with rivets or alines parts together and inserts rivets; holds objects to be riveted on anvil of machine; depresses pedal to lower ram that flattens ends of rivets to unite parts of objects. May punch rivet holes in articles by replacing riveting tool with a punching tool.

*RIVETING-TOOL GRINDER 6-78.167. Shapes the hammering ends of riveting tools to the measurement and contour required for forming rivet heads, by drilling, grinding, and polishing the tool in a small lathe: clamps riveting tool to the rotating spindle and attaches proper drill to the chuck in the machine; turns hand wheel to bring drill in contact with part; starts machine that rotates the part and forces the drill against the part, drilling a depression of required depth in the tool end; replaces drill with an abrasive stone attached to an air-driven motor; starts air motor and lathe motor simultaneously to grind the hole in the tool end to the proper shape; places a sample rivet head in the hole to check the contour; polishes the interior of the hole to exact contour by forcing emery cloth into the hole with a roundheaded hand tool while the part is rotating in the lathe.

*ROLLER, BAR MILL 4-88.028. Supervises the operation of a bar mill on which slabs of heated metal are reduced, by rolling them to size as specified on a shop order; interprets written or verbal orders, and determines procedure of work; directs members of his crew to aline and adjust rolls preparatory to start up and size changes; observes the operation of the mill, inspects the product during the rolling process and instructs and directs the various workers as to the proper adjustment of roll screws, regulation of hydraulic sprays and control of mill and conveyor speeds; is responsible for the condition of equipment, quality, and yield of production and for the effective operation of his unit to prevent delays on preceding or succeeding units.

*ROLLER-BEARING INSPECTOR 6-94.658. Examines the rollers used in roller bearings for conformity to specifications: puts rollers into a selector equipped with a preset gage that automatically ejects undersized and oversized rollers; inspects rollers for defects in metal, scratches, marks, and other blemishes, rejecting defective rollers.

*ROLLER OPERATOR II 6-77.330. Operates a machine that finishes the bearing surfaces of a crankshaft by revolving the crankshaft while rollers, under pressure, are in contact with the bearing surfaces to smooth and iron them to a polished finish.

*ROTARY-SHEAR OPERATOR II 6-94.204. Operates a machine to cut circular or curved sheet-metal blanks, or to trim excess metal from edges of curved sheet-metal blanks: marks cutting line on material with chalk or scriber, using pattern or template as guide, if lay-out is not made by SHEET-METAL LAY-OUT MAN; inserts edge of piece between the two cutting disks of rotary shear; steps on pedal to start disks revolving; manipulates piece, as disks cut away excess metal, following marked line.

*ROTARY-SURFACE-GRINDER OPERATOR 6-78.515. Operates one or more automatic or semiautomatic grinding machines of various types to rough-grind or finish-grind plane surfaces of parts such as clutch plates, piston tops, or pinion keys: fills hopper of automatic machine by hand or inserts parts individually into electro-magnetic chuck; may regulate length of operation or grinding pressure; empties machines of finished parts or removes parts by hand from magnetic chucks. May gage parts for accuracy and set up machine.

*ROTOR ASSEMBLER 4-99.162. Adds copper or brass disks to each end of laminated core prepared by ROTOR-CORE ASSEMBLER and presses whole assembly together in an arbor press; removes core from press and hammers copper or brass bars into slots of core assembly; bends over ends of brass or copper bars, that are later soldered to brass or copper disks, to form rotor for an induction motor.

*ROUTEMAN III 0-97.53. Determines the most efficient order for the routing of work through a plant department or division in a shipyard, and records this information on route sheets: studies work orders and blueprints for a particular job, and decides, from his knowledge of the work that can be done by the various machines and equipment in his department or division, the order in which the work should be routed for the highest degree of efficiency and economy; records order of operations on a route sheet, and writes the necessary information regarding each operation on individual operation cards that accompany the work to each machine.

*ROUTER OPERATOR III 6-94.227. Shapes sheet-metal blanks with a routing machine, using templates as patterns: clamps blank between templates with "C" clamps; places assembly flat on machine bed against a guide pin and depresses pedal to lower a rotating cutter into workpiece; holds and turns assembly against the guide pin until template has made one complete revolution under cutter.

*ROUTER OPERATOR, PORTABLE 6-94.235. Trims unfinished edges of sheet metal aircraft parts, such as noses and stabilizers, using a portable router: places sheet metal part to be trimmed in a router jig; trims burrs from the edges of the parts with shears; bolts a router guide to jig; starts router and runs it along router guide, cutting away excess metal and leaving a smooth edge; locates unevenly routed portions (high spots) of sheet metal using a straightedge and files them down by hand.

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*SAMPLE-BODY BUILDER 5-17.110. Builds miniature or full-scale models of new bodies from blueprint specifications, using wood and metal.

SAW FILER, HAND 7-84.230. Sharpens and adjusts teeth of band, circular, and hand-wood-working saws by hand: clamps saw in vise; files each tooth, regulating angle of stroke of file according to class of work and type of wood to be sawed; adjusts set (cutting width of teeth) of saw by spreading (flattening) points of teeth with a hammer and swage, or by springing alternate teeth in opposite directions with a saw-set (special pliers).

*SAW FILER, MACHINE 7-84.240. Sharpens, repairs, and conditions hand, circular, gang, and other types of woodworking saws: inspects saw by touch and with a straightedge; (1) cuts broken teeth from band saw by shearing out section of blade; splices blade by beveling ends to be united and welding or brazing them together; brazes or welds cracks in saw blade; removes dents, twists, and kinks by hitting saw blade with a light hammer as it is supported on a flat, steel table; (2) adjusts set of saw teeth by spreading (flattening) points of teeth with a hammer and swage, or by springing alternate teeth in opposite directions with a saw-set (special pliers); (3) clamps saw blade in saw-sharpening machine; adjusts spacing (distance between teeth), angle of bevel, and depth of cut of file or abrasive wheel; starts machine that automatically moves blade as file or abrasive wheel sharpens each tooth; removes saw and dresses teeth with hand tools. Tensions band saws by running blade between closely set rollers, or by stretching and hammering portions of the blade.

*SCARFER III 5-05.550. Scarfs the ends of castings, forgings, or metal bars, so that they may fit into each other in an overlapping joints, and be strongly spliced together: works from templates; sets cutting tool to proper angle in machine; sets part in vise of machine; pulls lever to start machine, and manipulates feeds to plane or cut part.

*SCREW-MACHINE OPERATOR 4-78.021. A TURRET-LATHE OPERATOR who sets up and operates a manually controlled screw machine (a type of lathe) to shape the internal and external cylindrical surfaces of bars or rods of metal to produce screws, bolts, nuts and other parts where threads are usually cut with taps or dies: inserts and adjusts tools in turret to perform desired operations as

they are brought into contact with part; clamps part in position and alines it with cutting tools; operates levers and controls, causing machine to perform in sequence the series of operations for which it is set.

*SCREW-MACHINE OPERATOR, SEMIAUTOMATIC 6-78.144. Shapes internal and external cylindrical surfaces on metal objects that are made from bars or rods of metal (bar stock) with a semiautomatic lathe provided with a turret that can be set up to present each of the tools required for a cycle of machining operations to the work in sequence, and frequently equipped with an automatic bar stock feeding device that keeps machine supplied with metal from which to make a succession of duplicate objects.

*SCREW-MACHINE-SET-UP MAN, AUTOMATIC 4-75.160. A JOB SETTER II who sets up tools and adjusts an automatic-screw machine (a type of automatic lathe for making small parts) to make any of the various metal parts for which the machine is adapted. May tend machine in operation.

*SEAMLESS-TUBE INSPECTOR 4-88.321. Examines and measures pipe tubing for defects and conformity to specifications: judges evenness of surfaces by sight and touch; blows tapered pin (drift) through tubing to detect inside irregularities (which stops passage of pin through tube); examines surfaces for bubbles and holes; checks dimensions with micrometers, calipers, and tapelines; checks threads with depth gage and by screwing on standard coupling; makes out reports of inspections.

*SEAMLESS-TUBE ROLLER 4-88.313. Sets up and operates processing rolls to form tubing from steel billets which have been pierced longitudinally: selects and installs rolls which mold outside of billet; selects and screws to a power-driven rod a plug that rotates inside the billet and forces it to expand to the proper inside diameter; manipulates levers to start machine and runs billet through successive sets of rolls until dimensions of tubing meet specifications.

*SEAT-PACK INSPECTOR 6-27.141. Examines parachute back pads, seat packs, and seat-pack accessories, such as protector flaps, cone panels, rip-cord pockets, and riser pockets for defective stitching, improperly fastened eyelets, and other discrepancies: unfolds part and scrutinizes it to detect any defects; verifies location of fittings, using a rule; pulls accessories to determine whether they are attached firmly; tests stitches that appear to be loose by trying to lift them up with the point of a scissors; cuts off loose threads with scissors; marks defects for correction with pins.

*SECTIONAL-HYDRAULIC-PRESS OPERATOR 4-86.140. Operates a sectional-hydraulic press, that is designed to perform such forging or drawing operations as the shaping of flanges on metal tank ends: determines the positions for the dies in the press from blueprint and bolts dies in place; places plate to be shaped between dies with a crane, assisted by SECTIONAL-HYDRAULIC-PRESS HELPERS and SECTIONAL-HYDRAULIC-PRESS LEVERMAN; signals SECTIONAL-HYDRAULIC-PRESS LEVERMAN to operate control levers, causing dies to be forced against plate and to press it to the desired shape; continues to manipulate plate between the dies until the specified shape is obtained; checks dimensions of forged plate with a rule, tapeline, or measuring wheel to see that the finished steel plate conforms to the measurements shown on the blueprint.

*SEWER, HAND XIV 6-27.110. Stitches metal parts, such as hooks, frames, and flexible tubes to various parts of parachutes, using a needle and waxed thread: slides flexible metal tubes on elastic cords and sews metal hooks onto the cords at specified intervals to form the releasing elastics for parachute seat packs; inserts metal frames into the false bottoms of parachute seat packs and sews them into place so that the packs will be strengthened and hold their shapes.

*SEWER, HAND XV 6-27.111. Sews, with a needle and wax thread, metal releasing cones to cone panels (reinforced pieces of duck cloth) to form the fastenings which release the parachute when the rip cord is pulled: punches guide holes in cone panels preparatory to sewing cones, using a hand-operated machine; stitches cones to both ends of each panel according to guide holes in panels and holes in the bases of cones; determines that cones are correctly spaced and that holes are in a straight line by inserting a special gage through the holes at the lips of the cones and measuring the distances with a rule.

*SEWER, HAND XVI 7-03.010. Sews the fabric covering to the frames of airplane control surfaces, such as ailerons, elevators and rudders: sews the seams of the fabric previously stretched over the frames by AIRPLANE COVERER, using a special stitch and pulling the thread tight; removes the pins and trims away excess material using scissors.

*SEWING-MACHINE OPERATOR 6-27.502. A classification title for the sewing machine jobs in the aircraft manufacturing industry.

*SHAPER OPERATOR I 4-78.061. Planes, shapes, or cuts grooves in metal objects with a machine that cuts with a tool held in a reciprocating head (ram): bolts or clamps work on table of machine; selects appropriate cutting tool and bolts it in tool post on machine; moves levers or shifts belts to adjust machine to cut, and feed the tool at appropriate speeds; moves ram of machine slowly by hand or power and sets reversing mechanism to limit ram stroke to travel required; turns handwheel to raise or lower table until work is near cutting tool; starts machine; turns crank on top of tool slide to adjust depth of cut; turns crank or handwheel to feed cutting tool into or across work or engages automatic feed; stops machine and measures work to verify its dimensions; may change position of work on table or change cutting tools as work requires; stops machine when work is completed and removes work from machine.

*SHAPER OPERATOR II 6-33.364. Sets up and operates a machine which cuts grooving, rabbeting, fluting, and various designs of irregular profile in the surface of parts: selects a balanced set of knives which, when assembled, will cut part to specified shape; mounts knives on machine spindle and locks them in place; usually places a guard over the knives; clamps a straight or curved guide to machine table, depending on the longitudinal shape of the product; starts machine; picks up stock, and feeds it to the rotating knives, pressing firmly against guide as it passes the knives; may shape stock by manipulating it against knives without the use of a guide or by passing stock between sets of knives; cleans and lubricates the machine.

*SHAPER OPERATOR, PORTABLE 4-78.062. Planes, puts grooves in, or otherwise shapes portions of metal objects that are too large to be mounted on machines, using a portable shaper that is bolted or clamped directly to the work: directs and assists other workers who mount portable shaper on the work and erect scaffolding if necessary; operates the shaper to perform the necessary machining.

*SHEET-METAL-FABRICATING-MACHINE OPERATOR 6-94.202. Operates a number of machines used in the fabrication of sheet-metal articles or equipment, performing duties, such as bending premarked sheets into various shapes; cutting specified sizes of sheet metal; cutting circular or curved sheet-metal blanks; and forming sheet-metal into tubular or uniformly curved shapes. Does not perform lay-out work, or installation work, as opposed to SHEET-METAL WORKER.

*SHEET-METAL FORMER 4-80.050. A SHEET-METAL WORKER, AIRCRAFT I who forms and bends sheet metal to shape parts of fittings or structural members of aircraft, working from blueprints and using a rule and dividers, outlines on an undeveloped (flat) part the lines along which the metal is to be cut; shapes cut piece to specified dimensions by hammering it over a forming block using mallets of wood, rubber, or rawhide; trims metal edges with hand snips and files off ragged edges and burrs; bolts and rivets parts together; inspects assembled unit after heat-treating and corrects any distortions, checking finished unit with micrometers, squares, rules, and other measuring instruments. Workers may be designated according to degree of proficiency acquired, as sheet-metal former, first class; sheet-metal former, second class.

*SHEET-METAL INSPECTOR I 5-03.820. Inspects sheet-metal airplane parts, such as ailerons, rudders, and wings for proper forming and assembly: tests hardness of metal, using standard hardness-testing devices: visually examines rivets and welds, and tests welds with feeler gages; inspects skin for bumps and weak spots; verifies dimensions of parts in an acceptance jig; and using precision measuring devices such as calipers and micrometers.

*SHEET-METAL INSPECTOR II 6-78.676. Inspects sheet-metal aircraft parts, such as ribs, fairing, cowls, and channels (U-shaped parts): determines that the contour, size, and location of bolt and rivet holes is correct, using templates and acceptance jigs; verifies gage of metal against blueprints to ascertain that the parts meet specifications; examines surfaces for dents, scratches, and

other surface defects; fills out rejection tags.

*SHEET-METAL INSTALLER 4-88.622. A SHEET-METAL WORKER III who installs and finishes complex and high-quality, sheet-metal assemblies on shipboard, such as tables, lockers, and ventilators.

*SHEET-METAL LAY-OUT MAN I 4-80.020. Draws and develops exact patterns and forms on sheet metal according to designs specified on blueprints, using scale, compass, dividers, and other lay-out tools; marks holes and lines with prick punch; indicates bends, cuts, and other operations by marking the metal accordingly.

*SHEET-METAL LAY-OUT MAN II 6-94.222. Marks the cutting and forming lines on sheet metal in accordance with templates: positions and secures template to sheet metal by inserting guide pins in the previously-drilled holes of the template and sheet metal and draws a line around the perimeter of the template with a scriber; positions templates on undrilled sheet metal, marking the cutting and forming lines so that maximum number of parts can be made from one sheet; lays out simple work according to blueprints, using instruments, such as steel rule and scriber.

*SHEET-METAL WORKER II 4-80.010. Fabricates, assembles, alters, repairs, and installs sheet-metal articles and equipment: cuts metal with hand shears, rotary shears; square shears; shapes metal with brake; forming machine; punches or drills holes for rivets, bolts, and screws with center punch and hammer, or hand drill; assembles sheet-metal parts, brackets, and hangers; bolts, rivets, or fits them into units for erection; makes attachments, seams, and joints by welding, riveting, bolting, soldering, nailing, or by fastening with metal ties and wood screws; grinds or files seams, joints, or rough surfaces, with grinding wheel or file. May mark lay-out on sheet metal according to blueprints or specifications.

*SHEET-METAL WORKER III 4-88.622. Fabricates and assembles ship units and equipment, such as ventilators, deck houses, and furniture largely of heavy sheet and light plate-steel, performing duties as described under SHEET-METAL WORKER II. May install the completed assemblies on shipboard if this is not done by SHEET-METAL INSTALLER. Usually works with more varieties and heavier gages of metal than that handled by SHEET-METAL WORKER II.

*SHEET-METAL WORKER, AIRCRAFT I 4-80.050. Cuts and forms sheet metal used in the assembly of aircraft parts, fittings, and structural members, using hand tools and sheet-metal working machines.

*SHEET-METAL WORKER, AIRCRAFT II 4-80.060. Fabricates, assembles, alters, repairs, and installs all aircraft sheet metals, such as aluminum, duraluminum, steel, tin, brass, zinc, or galvanized iron; lays out metal parts according to blueprint specifications and fabricates parts using sheet metal shop equipment including punches, drills, and metal saws; welds, brazes, or solders parts together; performs necessary heat-treating operations; anneals metal parts as required.

*SHEET-METAL WORKER FOREMAN 4-80.010. Supervises a group of workmen engaged in processing sheet metal: determines procedure of work; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature: Must be skilled in sheet metal operations.

*SHEET ROLLER I 5-92.301. A FOREMAN: Supervises rolling of reheated iron and steel sheets down to sheets of a thinner gage in a sheet rolling mill: directs workers in passing the sheets through rolls of the mills; adjusts rolls by turning screw that regulates the space between the opposing rolls of each mill; sees that sheets are being placed in the mills evenly, and are not burning or scaling in the process.

*SHEET ROLLER II 4-88.025. Directs the activities of workers in rolling cold or reheated aluminum sheets down to sheets of a thinner gage in a sheet rolling mill; determines the space needed between the opposing rolls of each mill to produce sheets of a specified gage and turns screws to adjust the rolls accordingly.

*SHEET TESTER 0-50.37. Tests iron or steel sheets to ascertain that the sheet metal meets plant specifications for strength: records heat, size, test, and treatment numbers on report; inserts the sample sheet in testing machine between die and cup and turns the handwheel until the holder clamps sheet against the die; sets the indicator scale to zero and continues to screw handwheel until the moment of fracture which is caused by the die forcing the sheet into the cup; examines the sample for fracture formation to ascertain how the fracture occurred, whether fracture was in a circle around the cup, or if it had a previous fracture in a certain direction; determines wheter sheet has retained its original structure or is rough and close grained; makes proper entry on reports.

*SHELL ASSEMBLER 6-54.091. Assembles artillery shells for shipment to the loading arsenal: lifts shells onto bench; screws fuse plugs into the base of the shells, and adapters (reducing bushings pierced and threaded in the center to receive fuses) into the nose, using hand and pneumatic wrenches; smears petroleum jelly onto unlacquered shell surfaces; screws plugs into nose-fuse holes; cleans and reams threads as necessary. May lacquer shells and metal parts by brushing, spraying, or dipping.

*SHELL FITTER 7-03.552. A SUBASSEMBLER II. Fits and clamps previously formed airplane fuel-tank shells to frames preparatory to riveting operations: marks places on tank skeletons where rivet holes are to be drilled; clamps shell to skeletons with C-clamps; alines the rivet holes in the shells in accordance with the markings on the frame, bending the shells by hand as necessary; drills holes in the skeletons to correspond with the predrilled rivet holes in the shells and fastens the parts together with nuts and bolts.

*SHELL INSPECTOR 6-78.673. Examines shells for defects in material or workmanship and to determine their conformity to standard dimensions, using various types of gages: scrutinizes shell cases for cracks, weak places caused by the presence of foreign matter, such as slag or sulphurous deposits, and for tool markings of excessive depth; uses plug gages to test the adapter threads in the nose of the shell; ascertains other measurements, using electric gages, calipers, and jigs.

*SHIP RIGGER 5-05.570. Installs all tackle and fittings of wire and Manila rope on a ship and fabricates and installs shroud stays, lifts, braces, life lines, and radio aerials, and other rigging fitted to masts, spars, and booms: lays out and cuts materials according to specifications, using shears and cutting pliers; splices wire cable and Manila rope when necessary and splices or otherwise attaches necessary fittings onto rigging, using hand tools; fabricates essential wooden and rope assemblies; nails, bolts, or ties rigging in place; tests ship rigging and crane lifting rigging on shipboard for proper functioning. May install canvas work, such as tarpaulins, hatch coverings, and boat, gun, and bunk covers on board ship. May sew canvas parts by machine or by hand, using a sailmaker's needle.

*SHIP-RIGGER FOREMAN 5-05.570. Supervises a group of workmen engaged in fabricating and installing riggings on a ship: determines procedure of work; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regular assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of a supervisory or minor administrative nature. Must be skilled in ship rigging operations.

*SHIPFITTER 4-84.012. Fits large, structural members, such as plates, bulkheads, and frames within the hull of a ship and braces them in position for final riveting or welding: studies blueprints and actual locations and lays out positions of the members; forces members into alinement, using drift pins, wedges, jacks, hoists, and other such equipment, and braces them into position with planks, poles, or guy wires; marks holes to be drilled and any alterations to be made; similarly installs and fits small structural accessories and members, such as doors, hatches, brackets, and clips; prepares, directly from the hull, molds and templates for the fabrication of parts which, because of their unusual design or shape, cannot be accurately predetermined in the mold loft.

*SIGHTER 6-93.773. Shoots finished gun at target (gun is held in machine rest) and adjusts sights until bullet hits part of target aimed at, using small mallet to tap sight in place, or using a hand tool to squeeze sight into holding slot on barrel.

*SINGLE-SPINDLE-DRILL-PRESS OPERATOR 6-78.083. Performs such operations as drilling, countersinking, reaming, and sometimes tapping, on metal objects with a drill press: fastens drill, reamer, or tap in machine, alines work on table of machine, and starts machine; pulls hand lever to feed tool to work or engages automatic feed; withdraws tool from work and stops machine.

*SKELETON ASSEMBLER I 5-03.554. A SUBASSEMBLER III. Fits together in a jig various adjoining structural members of airplane fuselages, tails, or wings and drills holes in the parts for subsequent riveting: reams and countersinks drilled holes by hand or with a powered tool; marks location of rivet holes in undrilled parts either by positioning a template over the part and counterpunching the indicated positions, or by referring to blueprints and locating the holes with a rule and divider; files parts to improve the junction of pieces when necessary. May specialize in the assembling of one part or unit.

*SKELETON ASSEMBLER II 7-03.542. A DETAIL ASSEMBLER I. Assembles and rivets together airplane fuel-tank baffle plates to form the tank skeleton that supports the tank shell: fits together and fastens in place with spring fasteners a specified number of baffle plates to form the skeleton, using a special tool; rivets baffle plates together aided by another worker who bucks-up the rivets; drills rivet holes as necessary with a portable electric drill.

SKIN MAN 5-03.552. A MAJOR ASSEMBLER. Fits sheet-metal coverings to fuselage bulkheads and other sections of aircraft and fastens them temporarily in positions with self-tapping screws or "C" clamps: trims edges of preformed sheets using a rasp to procure a proper fit; drills rivet holes through sheets and flanges of bulkheads using an electric drill; repairs metal areas that have been damaged by cutting away defective part with snips and riveting on a patch that fits flush with the adjoining skin. May make new parts of airfoil surfaces, cutting, bending, and trimming them to shape before new jigs and fixtures have been set up.

*SLITTING-MACHINE OPERATOR II 6-94.205. Cuts thin sheet metal into strips of specified width in a machine equipped with one or more shear rolls; adjusts rolls and guides to size specified, using a wrench; may place reel on machine around which strips are wound after being cut; starts machine and feeds sheet metal under rotating shear rolls by hand; oils and cleans machine and picks up pieces of scrap metal.

*SMALL-PARTS ASSEMBLER III 7-03.552. A SUBASSEMBLER II. Puts together the component parts of small airplane assemblies such as fins, stabilizers, ailerons, rudders, and elevators: examines parts for flaws; places all structural members, such as spars, ribs, and braces, in their proper position in a jig; slides skin (shaped sheet-metal covering) over the skeleton, and clamps the entire structure in the jig; alines rivet holes and inserts self-threading screws into specified holes to hold the assembly together preparatory to final riveting. May enlarge rivet holes to required size with an electric hand-drill and place rivets in the holes.

*SMALL-PARTS ASSEMBLER IV 5-03.554. A SUBASSEMBLER III. Joins accessories to airplane parts and equipment preliminary to installation on airplanes: installs pipe fittings on fuel and lubrication lines; attaches instruments to panels and makes the necessary electric and hydraulic connections, using tools, such as drills, pliers and screw drivers; assembles and installs electric switches; performs other miscellaneous duties, such as bending tubing by hand and taping wires incidental to the installation of small parts.

*SOLDERER, TORCH I 7-02.015. Fills with solder the holes and indentations made during the welding together of body panels, and roughly smooths the surface of the filled area, working in a group and performing one or more of the following operations: heats, with oxyacetylene torch the place to be soldered by holding the torch in his hand and moving the flame back and forth over the area; applies acid solution to the heated area with a brush; rubs a stick of solder over the heated area by hand; wipes soldered area immediately with a rag to remove much of the lead in the solder, and leave the tin on the area; dips up a small hand ladle full of molten solder and pours the solder over the tinned area; allows solder to cool; heats deposit of solder gently with the torch; works solder into place by pushing and pulling it with a cloth pad until the area is properly covered with solder; takes torch in one hand, and hardwood paddle, soaked in linseed oil, in the other, and smooths off soldered area with alternate strokes of the paddle and torch,

leaving soldered section slightly higher than the surrounding area for later filing.

*SOLVENT-RECOVERY MAN 6-52.446. Regulates the heating of and flow of air over partially processed smokeless powder to remove the ether and alcohol solvents: directs HANDLERS V in charging solvent recovery boxes with powder grains; manipulates steam valves to control the application of heat to the powder, observing temperature gages on the boxes to be sure it remains within prescribed limits.

*SOUNDPROOFING CUTTER 7-03.550. Prepares soundproofing and insulating materials for installation in airplanes and covering of airplane parts: determines from specifications the type and quantity of material necessary to produce the desired insulation; marks material according to template or blueprint using a crayon pencil or a scratch awl; cuts material along markings with a scissors or electric cutter. Assembles insulation material, by placing it between covering sheets, preparatory to sewing; cements, tapes, or wires felt and asbestos insulation on air ducts, steam pipes, and similar parts as required.

*SOUNDPROOFING-INSTALLATION ASSEMBLER 7-03.562. A SUBASSEMBLY INSTALLER II. Cements soundproofing and insulating materials to the inner walls of airplane cabins: fits standard-size sheets of insulating material in place, trimming away excess to secure a flush fit; brushes cement on back of sheets and presses them in place by hand.

*SPAR BUILDER I 7-03.552. A SUBASSEMBLER II. Assembles the members of an airplane wing spar in a jig and temporarily secures them with respect to each other with screws or tack welds prior to final assembly riveting or welding operations.

*SPARMAKER 5-25.640. A CARPENTER, SHIP who finishes and installs spars, masts, and cargo booms, and applies the fittings.

*SPEED-LATHE OPERATOR 4-78.012. Performs cylindrical metal-shaping operations which do not involve the removal of much metal, in a small lathe, using a cutting tool which is held and fed by hand: mounts work on centers in machine, or clamps work in a chuck. Clamps tool rest (a stand on which worker steadies the tool) in position near work; moves levers or shifts belts to select appropriate speed of rotation for work; turns on motor and starts work; grasps hand tool which resembles a long, narrow chisel, rests it against tool rest, and presses it into work, moving and twisting the tool about to achieve the desired conformation for the work. May sharpen the hand tools by holding them against a rotating abrasive wheel in such a way as to grind them to the desired shapes.

*SPINNER IV 4-94.201. Operates a lathe on which shaped articles are spun from sheet metal stock: measures, marks, and cuts disks from sheet metal stock, and drills a hole in each disk, using marking devices, shear, and drill press, or lays out disks to be sheared and drilled by others; clamps disk to spinning form, mounted on headstock spindle, by forcing the follow block against the disk with tailstock; starts machine; coats outside of rotating disks with beeswax; manipulates a form tool, by hand, against the disk, forcing it to the shape of the spinning form; smooths and trims spun piece with hand tools; removes completed part from machine.

*SPRAY MAN II 5-16.930. Sprays aluminum dope on fabric covered airplane parts using a spray gun: sets up parts in jigs; sprays surface evenly so that the tightening process will be equalized and the color will not be streaked when dry.

*STAR-GAGE OPERATOR 6-93.774. Determines the bore dimensions of rifle barrels throughout each inch of length, by machine: places barrel in holding device of star gage machine; inserts gage in barrel and records diameter readings on chart, rejecting those barrels found that are above or below acceptable limits; checks star gage for accuracy with a master ring gage.

*STATION INSTALLER II 5-53.030. Installs telephone station equipment, including booths, switching-key equipment, and the associated inside wiring, placing the equipment, interwiring it, and installing outside service wires which connect the inside wiring with nearby cable terminals located on poles or buildings.

*STATIONARY ENGINEER 5-72.010. Operates and maintains stationary engines and mechanical equipment, such as steam engines, air compressors, generators, motors, turbines, ventilating and refrigerating equipment, steam boilers, and boiler-feed-water pumps; observes meters and gages to determine operating condition of

equipment, and makes adjustments or minor repairs necessary to insure efficient performance; keeps clerical records, such as temperature of equipment and hours of operation, fuel consumed, and temperature and analysis of flue gases. In most states and municipalities, licenses (first, second, or third class) are required for boiler attendance and for the operation of the various engines and machines, the worker being restricted to the operation of types and sizes of equipment authorized by the license possessed. In many localities, such a license is required to fire a boiler to heat a building, or to supply steam for steam-consuming equipment. May oil and lubricate machines.

*STEAM FITTER 5-30.410. Installs pipes and equipment that must withstand high pressure for the distribution of steam.

*STEAM-HAMMER REPAIRMAN 5-83.641. A MAINTENANCE MECHANIC II. Keeps steam hammers in good running order, overhauling old equipment, repairing, replacing, or adjusting defective parts.

*STEELSCOPE OPERATOR 6-78.674. A MAGNETIC INSPECTOR who tests metal airplane parts for defects, using a method known by the trade name of Steelscope.

*STILL OPERATOR 4-52.731. Operates a still to separate a volatile liquid mixture into component parts by heating the mixture to the point of volatilization and controlling the condensation of the component parts; manipulates valves and controls application of heat to regulate flow of liquid and gases to still, the rate of distillation, and the condensation of products; observes recording thermometer, steam gages, and flow meter; samples product and checks with control laboratory for correct specifications; regulates and makes minor repairs to equipment.

*STILLMAN II 4-55.030. Supervises, directs, and is responsible for continuous, economical, and safe operation of one or a battery of stills in which crude or other oil is distilled to break it down into such products as gasoline, kerosene, lubricating oil, fuel oil, and petroleum coke: patrols entire unit regularly to check operating condition; regularly observes and records readings of temperature, pressure, and flow gages and meters; regulates temperature, pressure, and flow of oil through unit by adjustment of pipe valves or automatic controls; tests products for specific gravity and observes color to determine whether processing is being carried out properly; draws sample of products for laboratory analysis; makes minor adjustments to equipment; notifies mechanical department of need and supervises making of major repairs; shuts down still for cleaning, and opens it up when completed; may fire oil-burning or gas-burning furnace through which oil is run to heat it to processing temperature.

*STILLMAN, GAS PLANT 4-55.010. Tends operation of unit in which pressure distillate and non-condensible gases are treated to extract those gases which are used as a fuel: observes various temperature, pressure, and flow gages of unit to see that it is functioning properly, and records readings; adjusts valves to regulate height of liquid level in dephlegmator so that maximum separation of vapors from liquid will be obtained and vapors will be prevented from flowing back into unit, and to regulate flow of gases through unit; operates and controls speed of pumps to regulate flow of liquids through unit; controls temperature and pressure of unit by setting automatic regulators at points desired; winds and changes charts on recording meters; oils and greases pumps; shuts down unit and cleans it out with steam and water, exercising caution to prevent an explosion.

*STOCK-CONTROL CLERK 1-38.04. Controls the amount of stock on hand in an establishment; keeps a perpetual inventory, takes a periodical physical inventory, or checks the inventory records as prepared by other workers; calculates the stock on hand and orders those items that have become depleted, estimating from production, sales, or other records the amount required for future sales or for future use. May be in charge of the stock.

*STRAIGHTENER V 5-05.620. Corrects bends, distortion, and damage in ship plate and plate assemblies: inspects distorted area and chalks off guide lines on area to be corrected; directs HEATER II in heating area so that the expansion of the metal tends to correct the distortion and so directs a small water stream on the plate that the metal straightens on cooling; clamps a metal press (strongback) to badly distorted plates and screws it down with a wrench to press the heated area into shape.

*STRAIGHTENER, HAND 6-88.613. Straightens small, bent or warped metal objects, such as small bars, shafts, and housings by means of a hand-powered press.

*STRAIGHTENING-PRESS OPERATOR 6-88.612. Operates a power-driven press to straighten bent or warped metal objects, such as forgings, plates, shafts, and rails: sets object to be straightened on stationary supports on bed of press; locates warped or bent places by sighting along object, by placing straightedge on object, or by turning object and noting readings of deflection gages attached to machine; starts machine, causing ram to descend and apply pressure to points needing bending; varies pressure of ram according to amount of bending needed; removes object from press when piece is within tolerable limits.

*STRUCTURAL-STEEL INSPECTOR II 7-76.950. Examines structural-steel members, such as I-beams and channel irons for flaws and cracks; chalks flaws to be chipped out; brushes dirt, grease, and oil from the members with a wire brush to render flaws more discernible.

*STRUCTURAL-STEEL LAY-OUT MAN 4-84.620. Transfers location of holes, cuts, and bends from a template to structural steel: lays template on the steel section; marks location of holes, cuts, and lines, using a soapstone pencil and prick punch. May lay-out steel directly from blueprint or model.

*STRUCTURAL-STEEL WORKER 4-84.010. Works as a member of a group that raises and places fabricated structural steel members, such as girders, plates, and columns, and unites them permanently to form a completed structure or the framework of a structure. Usually structural steel work is broken down into various phases, such as rigging up hoisting equipment, raising (erecting) steel, and riveting, with separate gangs (raising gang, riveting gang) performing each phase. The workers are usually, though not always, interchangeable on all phases of work except the heating of rivets, which requires a technique not possessed by all workers.

*SUBASSEMBLER I 7-02.321. A classification title for workers engaged in the fitting together of subassembly units of combat vehicles.

*SUBASSEMBLER II 7-03.552. A classification title for jobs involving the joining of detail assemblies, to form airplane structural parts and equipment, such as elevators, bulkheads, spars, doors, and fuel tanks.

*SUBASSEMBLER III 5-03.554. A classification title for jobs involving the assembly of airplane sub-units, such as instrument panels, control pedestals, engine cowlings and landing gears.

*SUBASSEMBLY INSTALLER I 5-03.562. A classification title for jobs involving the installation in partially completed airplanes of subassemblies, such as heating and ventilating equipment, propellers, and radio equipment.

*SUBASSEMBLY INSTALLER II 7-03.562. A classification title for jobs involving the installation on an airplane of parts and equipment, such as electric conduits, soundproofing, seats, and carpets.

*SUBSTATION OPERATOR 5-51.210. Operates a substation switchboard to control the flow of electric current through the transmission lines, by pulling and pushing the handle of a device (circuit breaker) to break or connect the flow of current, and pushing button to start or stop additional synchronous converters when operating converters are overloaded as indicated by an ammeter which registers the amount of direct current being consumed.

*SULPHATOR OPERATOR 6-52.441. Combines and mixes specified quantities of a basic, liquid ingredient (dimethylaniline) with sulphuric acid as a step in the manufacture of an explosive called tetryl: lifts and empties five-gallon cans of dimethylaniline into mixing vat; turns valve to admit sulphuric acid until a dial indicates that an excess of the stipulated amount has been added; stirs mixture with a large, wooden paddle; empties vat into pipe-line by turning valve on vat bottom.

*SURFACE-GRINDER OPERATOR I 4-78.513. Grinds plane surfaces or grooves in plane surfaces with a machine that finishes metal with an accurately controlled abrasive wheel: selects abrasive wheel of appropriate size, shape, and abrasive quality

and fastens it on spindle of machine; fastens work on table of machine with vise jaws or other fixture or by energizing an electro-magnet built into or bolted to the table; adjusts speed of rotation of abrasive wheel and rate at which wheel is fed into or along and across work by moving levers; starts machine and turns hand-wheel to bring abrasive wheel into contact with work; observes operation of machine; stops machine and measures work; removes work from machine when it is completed. May dress or true the abrasive wheel by feeding it against a diamond.

*SURFACE-GRINDER OPERATOR II 6-78.522. Finishes flat metal surfaces, or grooves in flat metal surfaces, on a surface-grinding machine, performing simple, repetitive, precision grinding operations, as contrasted to the SURFACE-GRINDER OPERATOR I who frequently performs a variety of complicated grinding operations, using the same machine: fastens workpiece on table by energizing magnetic chuck; feeds abrasive wheel into work by turning hand wheel or by using automatic feed device, or, where automatic machines are used, observes automatic operations of machine, frequently tending several machines; removes work when completed; gages cut, using micrometers, calipers, and verniers. May make simple set-ups, although frequently this is done by another worker, usually a JOB SETTER II.

*SWAGING-MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Sets up and keeps in operating adjustment a battery of swaging machines that form lead pellets for bullets: sets up machines to produce slugs of specified weight, using hand tools to turn setscrews and to vary the action of the machine; replaces cutting knives when they become dull; grinds and polishes worn punches to fit corresponding dies; makes any other adjustment short of complete overhaul to keep machine operating.

*SWITCHBOARD OPERATOR II 4-87.410. Manipulates switches to control operation of electrically heated furnaces, reading pyrometers and adjusting controls to maintain required temperature.

*SWITCHPANEL MAN 7-02.271. Attaches wires to various switches and instruments on the dash, such as electric fuel gage, and ignition and light switches: pulls end of wire into place; attaches, with screw driver, clips, or solder, wire to proper terminal, each wire usually distinguished by a particular color. An operation performed on final assembly line.

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*TAIL-SURFACE FRAME BUILDER 7-03.552. A SUBASSEMBLER II. Assembles the members of airplane tail surfaces in a jig, and temporarily secures them with bolts, screws, or tack welds prior to final assembly gluing, riveting, or welding operations.

*TANK BUILDER II 7-03.552. A SUBASSEMBLER II. Puts together the component parts of airplane fuel tanks to make complete units: (1) bends sheet metal, using a machine equipped with rollers to form tank shells, preparatory to welding by WELDER, ALUMINUM; fits and rivets prefabricated structural members (baffles) to the hollow shells; (2) fits and bolts preformed tank shells to tank frames, drilling necessary rivet holes with a portable electric drill; inserts and spreads rivets with a rivet set to join shells to frames. Straightens tank shells by hammering out dents and bulges; removes burrs, using chisel and hammer; smooths rough spots and scratches with emergy cloth and files.

*TANK-FITTINGS ASSEMBLER 7-03.542. A DETAIL ASSEMBLER I. Assembles and rivets together airplane fuel-tank: trims or files fittings as necessary to fit individual tanks, using tink snips, hand files and other small cutting tools; fastens fittings to tanks, securing them in place either by bolting or riveting with a hand rivet set, and drilling necessary rivet holes with a portable electric drill. May check functioning of float gage by comparing it to a float gage calibrator, and may make any necessary adjustments. May pour a small quantity of kerosene and oil into the tank and shake it about to clean the tank interior.

*TANK TESTER I 4-84.110. Tests tanks and compartments of vessels to determine if they are oil and watertight: checks to see that all welding, riveting, calking, and packing has been completed, and directs workers to correct any faulty conditions; sets up pipes, steam units, and pumps to provide the proper pressure and temperature for water and oil tests; directs and aids in the sealing of the tank preparatory to tests; visually inspects the seams for tightness while tank or compartment is filled with hot oil or water under pressure. May test closeness of joints by using a thin-bladed knife. May repair leaks and defects by cutting,

chipping, filing, and calking angles, seams, and rivets, using chipping and calking tools.

TANK TESTER II 6-78.671. A TESTER II who tests airplane fuel tanks for leaks by filling tanks with compressed air and either covering the surface with a soap solution, or submerging the tanks in water to detect the leaks.

*TEMPERER III 6-87.310. Operates a tumbling heater to temper knife blades and springs: loads barrel-shaped heater with blades or springs, using a hand scoop; regulates temperature of gas flame under the heater and notes length of time items are to remain in the heater; pulls lever to start revolving motion of heater; empties heater by pulling lever to tilt it.

*TEMPERER V 4-87.310. Adjusts the hardness of previously hardened carbon steel by raising the steel to a temperature somewhat less than that used to harden it, holding the steel at the prescribed temperature for a prescribed time interval, and then cooling it slowly, or quenching it as the desired properties require: heats steel in a furnace, or in a bath of boiling oil, molten lead, molten salt or the like. May harden the steel before tempering it.

*TEMPLATE FILER 6-94.230. Cuts out and files to size sheet-metal templates, following the previously made markings on the metal: cuts sheet metal roughly to size, using a power band saw or a hand-operated shearing machine; files the roughly cut templates to exact dimensions as indicated by scribed lines, using hand files.

*TEMPLATE INSPECTOR 4-80.025. Examines finished metal templates for conformity to specifications, using micrometers, protractors, and other precision instruments. May enlarge undersized metal sections by pounding them on an anvil with a ball-peen hammer; files and smooths hammered and oversized sections using various hand files.

*TEMPLATE LAY-OUT MAN 4-80.020. A SHEET-METAL LAY-OUT MAN I who develops and draws on sheet metal the outlines of templates to be used in the fabrication of airplane parts.

*TEMPLATE MAKER III 5-17.220. Makes wooden templates (patterns) for ship parts, working from drawings, and using carpentry tools and such woodworking machines as cross cut, rip, and cut-off saws, planers, joiners, and band saws.

*TEMPLATE MAKER IV 5-17.255. Makes sheet-metal templates for airplane parts according to loft board lay-outs and other specifications, using various hand tools and metal-working machines; locates holes, cut-outs, and bends, using his knowledge of geometry and trigonometry, and marks the lay-outs, using protractors, scribers, dividers, and other precision instruments.

*TEMPLATE MAKER, STRUCTURAL STEEL 4-84.630. Makes full size wood, cardboard, or sheet metal templates from blueprints or models for use in laying out rivet holes, cuts, and bends on structural steel: locates holes, cuts, and bends, using his knowledge of trigonometry, orthographic projections, and radial projections, and marks their location, using lay-out tools, such as squares, dividers, and scales.

*TEMPLATE MAKER, WIRE 5-17.260. Forms wire templates for the fabrication of special pipe assemblies on shipboard and checks dimensions of completed assemblies: studies drawings of complex assemblies, sometimes bending thin wire into small models as guides; lays out plans of assemblies on the shop floor and bends template wire with hammer and dies to conform to the plan; supports the wire in place over the floor plan with braces and blocks, and checks its dimensions with rule and plumb line against the plan and the drawings; checks completed pipe assemblies in similar manner; may set up as guides pipe targets (wooden patterns placed in the relative positions of the flanged pipe ends the assemby is to join).

*TESTER I 6-78.671. Tests such objects as cylinders, fittings, tanks, and valves for leaks by water pressure: connects work to a water inlet; turns on valves that admit water under pressure to interior of work; observes gages and turns off water when prescribed pressure is reached; examines work for leaks. May subject work to higher pressure to test it for strength against bursting. May obtain pressure by working a hand-actuated hydraulic pump.

*TESTER II 6-78.671. Tests such objects as cylinders, fittings, tanks, and valves for leaks with compressed air: clamps work on a table over an air inlet or clamps plugs provided with air inlets into ends of openings; may place a small quantity of water or soapy water inside object being tested; turns valve to admit compressed air to interior of work and shuts off valve when gage indicates that prescribed internal pressure is obtained; examines work for leaks which will become apparent from falling gage pressure, escaping jets of air, and soap bubbles when soapy water is used.

*TESTING-MACHINE OPERATOR II 4-93.773. Performs various tests of firearms, including such as alining sights, testing for hardness of parts, shooting arms while they are held in machine rests; tabulates results of tests, analyzes results and makes written report of conclusions and recommendations.

*TESTING-MACHINE OPERATOR IV 6-98.290. Tests radio interstage, oscillator, and antenna coils for electromagnetic properties, such as inductance and resistance: plugs coils into test-set or clips appropriate lead wires of test-set to coil terminals; manipulates knobs and dials to operate test-set; notes readings on meters and compares them with a standard; rejects faulty coils for readjustment.

*TETRYL-BLENDER OPERATOR 6-52.480. Blends tetryl powder with graphite in a blending machine: weighs out specified quantity of graphite and pours alternate quantities of tetryl powder and graphite into hopper of blending machine; closes door of hopper so blender is airtight and starts motor which turns hopper; stops motor at the end of specified blending time and refills and weighs boxes. Usually aids in packing blended and unblended tetryl powder for storage.

*TETRYL-DISSOLVER OPERATOR 6-52.467. Dissolves crude tetryl explosive in heated benzene in dissolving tank equipped with agitators: weighs tank of benzene and turns valve to transfer it to dissolving tank; turns valve to circulate steam around the outer jacket of the tank, and heat the benzene; weighs out raw tetryl on a scale and scoops it into heated benzol in dissolving tank; starts agitator which mixes solution for specified length of time; turns valve to run solution into crystallizer.

*TETRYL-NITRATOR OPERATOR 4-52.446. Combines and mixes the basic chemical ingredients (nitric and sulphuric acids and dinitrophenylanaline) of tetryl explosive: weighs specified quantities of acid solution and dinitromethylaniline in weighing tanks; turns valve to admit acid solution to nitrator, starts agitators, and admits dinitromethylaniline; turns valve to circulate steam through nitrator jacket and cooks solution for a specified period within prescribed temperature limits; cools solution by admitting cold water to jacket; opens dump valve to pass solution into vacuum pan; records nitration data, such as cooking period and temperatures on record sheets.

*TETRYL-SCREEN OPERATOR 6-52.482. Works as a member of a crew, performing any one or combination of the following duties in the screening of dried tetryl powder: (1) determines by touch whether tetryl powder is dry enough for screening; transfers trays of dried tetryl to screening room on a hand truck; (2) starts motor which agitates screen, allowing fine tetryl powder to fall through, and reject the lumps; dumps tetryl from trays into hopper of screening machine; (3) lines boxes in which acceptable tetryl is to be packed using wax paper and places boxes beneath spout; places box under boxes to scale and checks weight; places weighed boxes on hand truck and transfers them to storehouse; carries box of tetryl lumps to still to be reprocessed.

THREAD GRINDER 6-78.516. Grinds threaded articles to correct the pitch of the thread after heat treating or to impart a final finish to the thread.

*TILTING-FURNACE OPERATOR 4-91.572. Charges, regulates heat of, taps, and maintains a gas-fired or oil-fired furnace in which metals, such as iron, copper, zinc, and aluminum, are melted: lights fire in furnace; controls flame and temperature by regulating valves of air and gas or oil lines; charges metal and flux into furnace; observes melting and judges temperature or fluidity of molten bath by noting the color or by use of pyrometer; tilts furnace with handwheel to pour molten metal into ladles; cleans, repairs, and relines furnace when necessary; may assist pourers to carry and pour metal into molds.

*TINSMITH 4-80.010. A SHEET-METAL WORKER II who makes and repairs equipment of copper, tin, or zinc sheet metal, such as oven hoods and tank linings.

*TOOL CLERK 1-38.05. Is in charge of storing tools and equipment, such as wrenches, machine attachments, measuring devices, and power-driven hand tools; issues tools to, and receives them from workmen; keeps records of the receipt and issuance of tools; unpacks and stores new equipment; reports damaged and worn-out equipment to superiors. May make minor repairs to equipment; may requisition new equipment as needed; may distribute equipment to workers.

*TOOL DESIGNER 0-48.41. Designs special tools and fixtures, such as boring bars and milling-machine tools; may do drafting. Frequently is a MACHINIST II, using types of machines for which he is designing tools.

*TOOL DRESSER I 5-84.010. Sharpens and tempers picks, rock drills, mattocks, and similar tools (except knives, wood chisels, and other fine-edged tools) by heating them in a forge and hammering the cutting edges to desired shape on an anvil or in a die; tempers tools by heating them to proper temperature and then quenching them in water or other quenching medium. May file, or grind, fine cutting edges on tools. May cut one or more pieces of tool steel to desired length with chisel and hammer, and fashion rock tools or chisels from them.

*TOOL DRESSER II 7-84.010. Sharpens rock drills by means of a compressed-air-driven, or steam-driven machine that forges cutting edges on drills by the hammering action of dies mounted in the machine: heats cutting end of drill in forge until it glows red; inserts heated drills into die space on machine; starts hammering action of die which shapes cutting edge; stops machine when proper edge is obtained; removes drill and tempers it by heating it in forge and then quenching it in water, brine, or oil.

TOOL GRINDER II 7-84.110. Sharpens leather-cutting, stone-cutting, wood-cutting, and metal-cutting tools, such as axes, rock drills, cold chisels, and wood chisels, that need not be ground to a very fine tolerance: grinds tools on grinding wheel, as in TOOL GRINDER I. May temper sharpened tools by heating them to a criticial temperature and then quenching them in water, oil, or brine. May hone burrs from ground edges by hand with a whetstone. Does not grind stoneworking machine tools, woodworking machine tools, or metalworking machine tools, the grinding of which requires a knowledge of shop mathematics, use of tools, use of machines, and other specialized knowledge.

*TOOL-GRINDER OPERATOR 5-84.110. Sharpens cutting tools, jigs, and fixtures with a modified universal grinder, using variously shaped abrasive wheels: fastens appropriate abrasive wheel to spindle of machine; mounts arbor on which milling cutter has been pressed between centers on machine, or mounts other types of cutters on machine in appropriate fixtures; swivels spindle of machine to appropriate angle for grinding desired bevel on cutting edges of tool; starts motor and turns handwheel to bring abrasive wheel into contact with edge of cutter; turns handwheel to feed rotating abrasive wheel along edge to be sharpened; turns cutting tool about to present successive edges to abrasive wheel. May use a dividing head to turn milling cutters the exact amount required to present successive teeth.

*TOOL HARDENER 4-87.230. Tempers or hardens machine tools, jigs, fixtures, and other parts, selecting for each piece the method of heat treating best suited to the type of steel involved and the use to which the tool or part will be put: case-hardens some parts; tempers and hardens other parts. May anneal parts. Often uses small furnaces that have no automatic thermostats or pyrometers, depending on his skill in observing color changes in the steel in the furnaces, and knowledge of the temperature ranges and characteristics these colors represent, to decide when to quench the heated part.

*TOOL INSPECTOR 4-76.220. Tests and approves new gages, jigs, fixtures, and precision tools before they are used by production workers, and inspects them in use to make sure they are maintaining their accuracy, using master gages, Johansson blocks, micrometers, and other precision instruments; checks gages and production against blueprint specifications, working to fine limits, frequently to tolerances as fine as 0.0002 inch.

*TOOL MAKER 4-76.210. Specializes in the construction, repair, maintenance, and calibration of machine shop tools, jigs, fixtures, and instruments, operating various machine tools and performing other highly skilled work, such as laying out, fitting, and assembling parts.

*TORSION TESTER 7-02.724. Operates a machine to twist and bend axles, drive shafts, and other parts, that reveals defects and shows the limits of stress a part will undergo before it fails: clamps part in place in machine; moves levers and handwheels to operate machine; reads gages and other indicators.

*TRACER IV 0-48.31. Copies drawings of machines and parts made by DRAFTSMAN by tracing them with ink or pencil upon transparent paper or cloth spread over the drawings; uses T-square, compass, pens and other drafting tools.

*TRANSMISSION TESTER 7-02.725. Tests assembled transmissions by simulating actual operating conditions: lifts transmission with a hoist onto a jack; flushes gears with oil; attaches clutch shaft to a motor; starts motor, thus revolving gears in transmission; runs motor at various speeds; shifts gears to operate each combination; detects faults by ear, listening to the sound of the gears as they mesh at different speeds; passes satisfactory transmissions; returns faulty transmissions for disassembly and correction.

*TRANSMITTER TESTER 0-61.80. Performs various tests on and adjusts radio transmitting equipment to conform to specifications, using specialized test instruments, such as wave analyzers, oscillographs, distortion meters, ammeters, and voltmeters: examines and checks electrical circuits for defective units and wiring, according to blueprints and schematic diagrams; connects transmitter to power supply and installs dummy antenna; tunes transmitter to specified frequency to ascertain characteristics, such as frequency stability, distortion, fidelity, and power output; determines frequency deviation from a given frequency under various operating conditions; records all data and makes calculations, using a slide rule; marks defective parts for repair by appropriate departments. May test the transmitter for performance under varying conditions of humidity, temperature, shock, and vibration.

TREAD CUTTER, HAND 7-89.426. Prepares used rubber tires for retreading operations by cutting old tread from the tires with a sharp knife, being careful not to cut or injure the fabric. May buff tires.

*TREAD CUTTER, MACHINE 7-89.427. Cuts old tread by machine from used rubber tires preparatory to retreading operations: places tire between feed rollers of tread-cutting machine; starts machine knives revolving; feeds tire into knives, guiding it so knives cut tread as cleanly as possible without damage to the fabric. May buff tires.

*TRIM-MACHINE ADJUSTER 7-83.326. A MACHINE ADJUSTER III. Makes repairs and adjustments to machines that shorten cartridge cases to uniform lengths: changes the setting of the rotary cutter head and replaces it when it becomes full or damaged, using hand tools; sets cams in the correct position on shafts using wrenches to tighten setscrews; straightens slight bends in feed arm and other parts with light blows of a hammer; removes and replaces chuck and dies, using hand tools.

*TROUBLE SHOOTER VI 5-83.413. An expert in testing and repairing radios, who locates faults in the completely assembled radio, and from his knowledge of radio theory and construction, elementary electricity, and magnetism, corrects faults or indicates on a tag the elements to be repaired.

*TRUCK MECHANIC 5-81.030. As for AUTOMOBILE MECHANIC. Repairs light delivery trucks and heavy transport vehicles, performing duties, such as disassembling and overhauling engines, transmissions, clutches, rear ends, and other assemblies on trucks, replacing worn or broken parts, grinding valves, adjusting brakes, tightening body bolts, and alining wheels; uses hoists, various sized wrenches, gages, drills, grinding wheels, and other general or specialized machines, gages, and tools.

*TUBE BENDER I 4-88.342. Bends skelp (a type of steel used for making pipe) into cylindrical form, ten inches or under, with overlapping edges by drawing it through a die by means of hand tongs; grasps end of skelp with tongs and hooks tongs on endless chain which draws skelp through die, overlapping the two ends which are later welded to form tight joints.

*TUBE BENDER II 4-88.342. Operates power-driven bending rolls to bend skelp (a type of steel used for making pipe) for pipes of large diameter (usually more than ten inches) into a tubular form with edges overlapping and ready to be

welded: manipulates levers to feed each piece of skelp between rolls that form it into tube after charging machine has pushed it into rolls to be bent; supervises operations of furnace in which skelp is heated to proper temperature prior to bending.

*TUBE-BENDING-MACHINE OPERATOR I 6-95.053. Adjusts and operates a machine that bends pipe or tubing to accurately determined angles: selects a bending die and clamp of appropriate size and conformation and mounts them on the machine; clamps automatic stops in position on graduated scale to stop machine when bend has swept through required angle; slides pipe or tube over a holding rod (mandrel) and clamps the portion at which bend is to start against die in bending head; moves lever or pedal to actuate machine which bends pipe or tube by drawing it around the rotating die (when bend of required angle has been made, the bending head mechanism contacts automatic stops and halts the machine); releases clamp, slides tube from machine, and checks accuracy of the bend by holding the tube against a pattern, template, or sample bent tube. May reclamp tube and readjust bending mechanism to produce several bends along the length of a single piece of tubing.

*TUBING-MACHINE OPERATOR I 4-88.312. Tends a machine that cold-rolls and welds flat strip steel into round tubing: sets and locks desired size rollers in machine, using hand tools; sharpens trimming tool, if necessary, and locks it in place; turns on water for cooling rolls and electric current for welding; threads end of strip through clearing bin, polishing rolls, and into feed rolls; starts machine; clamps end or tube to power conveyor when it emerges from machine; shuts off power from forming rollers, allowing conveyor to pull metal through rollers; electric welds new rolls of metal to end of roll in machine to form continuous lengths of tubing. Some machines do not weld seam as tubing is formed, the seam being closed in a subsequent operation on a swaging machine. Tubes may be formed to designated lengths, instead of to continuous lengths as indicated above.

*TURRET-LATHE OPERATOR 4-78.021. Shapes external and internal cylindrical surfaces of metal objects, such as castings or forgings, which are best machined when held in a chuck. The machine is semiautomatic being equipped with a turret that can be set up to present each of the tools required for a cycle of machining operations to the work in sequence.

TURRET-LATHE OPERATOR, AUTOMATIC 6-78.021. Tends a fully automatic turret lathe in which the actions of all tools are controlled automatically, frequently by cams, feeding blanks into the machine and disposing of machined parts. The machine is usually set up and adjusted by a JOB SETTER III.

U

*UNIONMELT OPERATOR 4-85.080. Sets up and operates a welding machine known by the trade name Unionmelt to produce structural connections and watertight seams between flat steel plates of hulls, decks, or bulkheads used in making welded ships: places and alines machine tracks parallel to joint between plates to be welded; positions wheels of machine on the tracks and turns the machine so that its welding rod is directly over the joint between the plates; manipulates a wheel to raise or lower welding rod and produce desired arc between the rod and joint of the plates; regulates speed and voltage of machine by setting proper controls; places steel wool between joint and rod to complete contact and turns on electrical current to start welding process; opens a valve to release flux from machine hopper and permit it to run down the rod and into the joint being welded; pulls levers to run machine on tracks over the joint; inspects seam as it is being welded and readjusts voltage and speed as necessary to correct errors and prevent formation of gas pockets; refills machine with coils of welding rod and oils machine as necessary.

*UNIVERSAL-GRINDER OPERATOR 4-78.511. Grinds external and internal cylindrical surface with a machine that differs from a plain cylindrical grinder only in that the abrasive wheel spindle may be adjusted to feed at selected angles to the axis of the work for grinding tapered holes or sharply tapering external surfaces.

*UNIVERSAL-WINDING-MACHINE OPERATOR 6-98.250. Operates a machine that winds wire onto a spool to form any of several types of spiral (helical) coil for use in radio: mounts spool on machine; attaches one or more wire to spool with tape; sets automatic counting device and starts machine; may wrap layer of paper around

coil and wind another layer of wire, for certain types of coil; attaches lead wires with soldering iron, and slips braided sleeve over wires.

*UNIVERSAL-WOODWORKING-MACHINE OPERATOR 4-33.311. Operates a universal woodworking machine, to perform various operations on wood, such as chamfering, gaining, sawing, shaping, and tenoning: sets up and adjusts the various cutting tools according to specifications shown on blueprints, using ordinary measuring tools, such as scales, gages, and templates; fastens wood material in machine by engaging clamps or vises, or by holding the parts by hand; starts machine and manipulates tool carriage or spindle to effect the desired machine operation. Must have a good knowledge of wood in order to use the proper feeds and speeds to obtain the best results with the least amount of waste.

*UPHOLSTERER II 4-35.720. Installs, arranges, and secures springs, padding, and covering material to frames of aircraft and ship fixtures: sets and secures springs in position in frames, cotton wadding or other filling material, in layers over covered springs, folding edges and packing it as required to make a smooth, rounded pad; cuts and tacks burlap or canvas tightly and smoothly over padding; draws assembled cover over burlap, cutting seams or cover as necessary to make a perfect fit; tacks cover tightly over burlap to frame; tacks denim or cambric over backs of frame openings; tacks fringe, tape, binding, or other trimming material in place.

V

*VACUUM-PAN OPERATOR III 6-52.471. Purifies recently crystallized tetryl (high explosive powder) by washing it with warm water and drying it in a vacuum pan: turns valve to admit tetryl from crystallizer into vacuum pan; fills pan with warm water and turns suction valve to draw off liquid and dissolved impurities, leaving powder to settle in a felt bag; shovels and scrapes powder into a tub on a hand truck and pushes truck to dry house; scrapes powder onto trays and slides the trays into wall slots for drying.

*VARIETY-SAW OPERATOR 6-33.224. Sets up, adjusts, and operates a power-driven, hand-fed, circular saw which, with appropriate saw disk and adjustment of saw table or guides, is used to perform any of the more common sawing operations, such as ripsawing, crosscutting, beveling, or grooving, on small stock: selects and installs appropriate sawing disk; turns handwheel or crank to adjust position of saw and saw table; starts machine; lays board on table, holds it against guide, and pushes it into rotating saw by hand.

*VARNISHER VIII 5-27.140. Prepares the surface of the wood and metal fixtures and fittings used on a ship, using sandpaper, steel wool, pumice, or rottenstone, and applies stain, shellac, varnish, or other substance with a brush.

*VERTICAL-TURRET-LATHE OPERATOR 4-78.022. Performs typical turret lathe operations, using a lathe, the turret of which is mounted vertically above a horizontal faceplate. This design for turret lathes is particularly adapted to work on large, heavy, or irregularly shaped pieces of metal.

W

*WELDER, ACETYLENE 4-85.030. Fuses (welds) metal parts together by means of an oxyacetylene torch and welding rods to fabricate metal shapes or articles or to repair broken or cracked metal objects: places the parts to be joined or the object to be repaired on a flat surface, and wires, clamps, or otherwise holds objects in their relative position; assembles welding apparatus by connecting torch to hose and hose to regulators on tanks of oxygen and acetylene; lights torch and regulates flow of gases by manipulating valves until desired flame is attained; holds flame against metal until it melts, guiding flame along joint between the parts, and at the same time applying a metal rod to the molten area to supply the excess metal needed to form the weld. May dip rod into flux and apply the flux to the molten area. May preheat the parts with torch before welding to obtain a better weld and to lessen internal strains set up in the metal by the intense heat of the welding flame. May lay out (mark) metal, in accordance with blueprints, before welding. May cut metal.

*WELDER, ARC 4-85.020. Fuses (welds) metal parts together by means of electric welding apparatus to fabricate metal objects or to repair broken or cracked

objects, or employs electric welding apparatus to increase the size of metal parts: starts motor generator, or starts gasoline motor that drives generator; places metal objects in position on work table, floor, structure, or where welding is to be performed; wires, clamps, or otherwise holds metal parts in relative position; connects wire from one pole of generator to electrode holer held in hand and connects wire from other pole of generator to work; inserts electrode (round metal rod) in electrode holer; touches electrode to work to complete electric circuit and instantly withdraws it a very short distance, forming electric arc (the heat of the arc melts the metal directly under the electrode); guides electrode along line of weld, allowing sufficient time for the heat of arc to melt the metal (the excess metal needed to fuse or build up the parts is melted from the electrode, and the amount of metal deposited depends upon the length of time the electrode is held at any one spot); breaks electric circuit by withdrawing electrode. May lay out (mark) metal parts before welding. May turn rheostat to regulate flow of electricity from generator. May use a carbon or graphite electrode in holder and apply needed metal from a welding rod held in other hand.

*WELDER, ATOMIC 4-85.060. Fabricates or repairs metal parts by fusing them together, using atomic-hydrogen arc-welding apparatus: fastens pieces to be welded in the proper position with metal clamps; selects welding rod according to composition of material to be welded and tungsten electrodes of size and weight determined by current necessary to melt and fuse materials; clamps electrodes to electrode holder; inserts plug from the hand electrode into the proper amperage outlet of the machine panel, according to thickness of metal to be welded; fastens hydrogen hose and gages to the tank, using wrenches; strikes an arc by pressing a trigger on the handle of the electrode holder that simultaneously reduces the gap of the electrode points and controls the flow of hydrogen; guides electrodes along line of weld, allowing sufficient time for the heat of the arc to melt and fuse the metal; melts additional metal needed to build up the weld by introducing the end of a welding rod into the fused area; breaks arc by releasing trigger.

*WELDER, BUTT 6-85.020. Welds together the edges or ends of metal objects, such as bars, pipes, or plates, by means of electric-welding equipment that creates a difference of electrical potential between adjoining ends or edges which, when the edges are touched together, generates heat that melts and fuses the ends together: sets work in machine and clamps it in position; moves lever to bring ends of work together; makes adjustments to clamps and work to make ends meet; turns switch or moves lever causing electricity to flow through clamps into metal parts to be joined, thus making weld.

*WELDER, BUTT, TUBE 4-88.341. Draws skelp (sheets of steel used for making pipe) through bell (a type of die used in bending skelp to form steel pipe) which bends skelp into pipe form: fixes bell, the opening of which is the same as the outside diameter of pipe, in furnace pulls end of hot piece of skelp into bell block groove with hand tongs, and hooks the hand tongs on an endless chain that draws the skelp through the bell, bending it into pipe form and applying sufficient pressure to weld opposing edges.

WELDER, FLASH 6-85.030. Joins metal sections (usually panels) together by means of an electric-welding machine that automatically welds the parts in a continuous weld: places parts to be joined in bed of machine; alines parts properly; pulls lever, causing power clamps to hold sections firmly; pulls switch, causing movable electrode to travel along line of weld to form a continuous weld; pushes switch to stop flow of current and to return electrode to starting position; unclamps and removes pieces from machine.

*WELDER LEADMAN 4-85.010. Supervises a group of workmen engaged in acetylene and/or arc welding operations: determines procedure of work; assigns duties to workers and inspects their work for quality and quantity. May assist subordinates during emergencies or as a regularly assigned duty, set-up or inspect equipment preparatory to regular operations, and perform related duties of supervisory or minor administrative nature. Must be skilled in arc and acetylene welding.

*WELDER, ROLLER SEAM 6-85.100. Joins overlapping metal pieces by forming a continuous leak-proof weld, using a roller-seam welding machine: positions metal to be welded over bottom welding wheel, machine table, or mandrel, and clamps upper welding wheel to metal by manipulating compressed air controls; starts wheel or wheels moving across metal and causes electric current to flow from the

upper and lower electrodes through the metal, forming a continuous weld along the seam as far as the wheel rolls. May spot weld seams which do not have to be leak-proof by changing electric controls so that the current is periodically interrupted. Seam welding differs from spot welding, in that the relative positions of the spots can be altered; it differs from bar welding, in that the operation is entirely by machine; and it differs from both spot and bar welding in that the upper electrode is a moving wheel.

WELDER, SPOT 6-85.060. Joins together two or more overlapping pieces of metal by means of a spot-welding machine: clamps pieces together, or clamps pieces into bed of machine to hold them in desired position; depresses foot lever to bring electrodes together with metal pieces to be joined between them, thus instantly welding the pieces; releases foot pedal after required time has elapsed to make the weld and before metal is burned; occasionally cleans adhering metal from electrodes with file. May interpret blueprints and spot weld parts accordingly. Spot welding differs from bar welding in that the WELDER, SPOT does not hold or guide a hand electrode, makes no continuous welds, and is limited in the number and position of welds that can be made in one operation by the set-up of the electrodes and the metal pieces to be welded.

*WELDER, TACK 6-85.080. Temporarily joins together metal parts, such as plates, structural members or pipe to hold them in position for final welding by making a number of short welds along the edges to be joined, using arc-welding equipment.

WELDER, THERMITE 6-85.070. Joins metal parts together by means of thermite process: cleans metal parts before and after welding with a wire brush or file; may preheat parts with gas, oil, or gasoline torch if parts are large; builds clay mold with hands around parts to be joined; pushes funnel holding thermite compound into mold; ignites compound, which causes iron to melt and flow into mold.

*WELDING INSPECTOR 4-85.070. Inspects welds for defects and weakness: examines welded joints for cracks, cold welds, and excessive welds, after using a flashlight and magnifying glass; similarly examines tack welds and checks the union of the parts for strain; verifies welded units with blueprints, using measuring devices such as squares, protractors, and micrometers; indicates needed reworking by marks on the parts. May employ acceptance jigs in the inspection of welded parts.

WELDING OPERATOR. A term applied to a worker who makes a weld, using welding equipment. Specifically designated according to type of welding equipment used, as WELDER, ACETYLENE; WELDER, ARC; WELDER, FLASH.

*WELDING TESTER 4-85.020. A WELDER, ARC who periodically conducts welding tests for other welders and applicants: watches worker's procedure and technique, and records the test conditions, such as rod size, current, and type of weld; bends welds in a bending machine to expose flaws, and submits records and welds to an inspector to qualify or disqualify the workers; similarly conducts tests for applicants, and personnaly examines the welds and rates the applicants.

*WHEEL-LATHE OPERATOR 6-78.166. Reshapes the worn rims of streetcar wheels by machining: sets a pair of wheels into position in the lathe with the aid of a chain hoist, setting one end of the axle into a hole in the faceplate, moving the other faceplate to hold the other end of the axle and tightening the jaws on the faceplates to automatically center the work and hold it in place; determines how much metal to take off the treads in order to make full flanges, on checking treads with spring calipers to compare their relative sizes, and comparing the shape of the two worn flanges with a contour gage; sets the cutting tools in tool holders to cut the two wheels simultaneously; starts motor and turns handwheels to advance tools into contact with surface of rotating treads and to engage the tool-feeding mechanism; checks diameter of wheels with rod gage during the progress of the work; changes cutting tools to cut half the contour of the flange, being guided by a contour gage, and cuts the other half in a similar manner; cuts treads at a slight angle by changing and setting another tool in the machine.

*WHEELWRIGHT II 7-81.210. Repairs damaged automobile wheels, performing duties, such as reshaping wheel rim by hammering bent parts into shape on anvil, or bending parts into shape with a pry bar, replacing damaged wire spokes, removing warps from wheel rim, and truing wheel, using hydraulic jacks and wheel press.

*WING-FRAME BUILDER 5-03.554. A SUBASSEMBLER III. A SKELETON ASSEMBLER I who assembles the members of an airplane wing in a jig, and temporarily secures them in position with bolts, screws, or tack welds prior to the final assembly gluing, riveting, or welding operations.

*WING MAN 5-80.100. A term applied to an AIRPLANE MECHANIC when engaged in repairing wooden or metal airplane wings.

*WIRE CHIEF I 5-53.120. Supervises and is responsible for the testing, repair, and general maintenance work on station and other outside-plant telephone equipment, done by the various crews concerned in these operations.

*WOOD CALKER II 5-05.610. Calks the seams of wooden decks of ships to make them watertight, using power tools; guides a calking machine that automatically pushes the calking material into place along deck seams; hammers the calking material tightly into the seams by running a machine equipped with a tamping tool over the seams; secures all loose strands of calking material by hammering them into seams; using a hand calking iron and mallet; closes seams in those portions of deck not accessible to the machine by hand; heats marine glue in an electric melting pot; fills a glue runner (funnel) with liquid glue and runs narrow opening of funnel over seams, permitting glue to flow into seams and overflow slightly onto deck surface along edges of seams; allows glue to harden and removes surplus with a metal scraper. May remove old calking by pushing the point of a hooking iron into the calking and pulling it out by hand.

*WOOD INSPECTOR 4-33.918. Inspects wood materials and completed structural units of airplanes; visually inspects lumber for knots, pitch, and seasoning; determines the strength of formed wood parts which bear a heavy strain by inserting a knife blade into the grain; verifies dimensions and contours of unassembled parts against blueprints, using squares, calipers, and protractors; examines and tests wood skeletons, covered units, and completed airplanes for conformity to specifications and for strong construction by exerting pressure on the parts by hand.

Y

*YARD INSPECTOR 5-05.512. Examines various units of submarines during construction for faulty workmanship and compliance with blueprint specifications and Navy standards; inspects welded joints for proper fusion; checks structural units with blueprint specifications to see that frames, plates, and foundations are properly assembled; examines installation of machinery and gear, checking on alinement and operation; checks installation and operation of electrical wiring and equipment; examines piping and sheet-metal work; supervises tests on tanks, pipes, and bulkheads, uses measuring tools, such as rules, calipers, and gages.

Z

*ZIG-ZAG-MACHINE OPERATOR 6-27.578. Stitches pieces of fabric or leather together on a machine that sews a zig-zag stitch.

*ZIG-ZAGGER 6-27.578. A ZIG-ZAG-MACHINE OPERATOR who sews shroud lines into the panel seams across the hems and through the reinforcements of parachute canopies to relieve the stress on the canopy.

*As indicated in the Introduction, those occupations which normally require more training than can be given in pre-employment instruction are marked with an asterisk.

PART III

OCCUPATIONS ARRANGED ALPHABETICALLY

UNDER

STANDARD COURSE TITLES

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
	AIRCRAFT MANUFACTURING
10	**Aircraft Sheet Metal - Mfg.**
	6-94.221 Bumper Operator I
	6-88.622 Dimpling-Machine Operator
	4-88.314 Draw-Bench Operator II
	6-94.224 Flanging-Machine Operator IV
	4-88.627 Forming-Press Operator II
	4-88.632 Hydro-Press Operator
	6-88.627 Kick-Press Operator II
	4-80.022 Lay-Out Man
	6-94.222 Radial-Drill-and-Router-Table Loader
	6-94.226 Radial-Router Operator
	6-94.235 Router Operator, Portable
	4-80.050 Sheet-Metal Former
	6-94.222 Sheet-Metal Lay-Out Man II
	4-80.050 Sheet-Metal Worker, Aircraft I
	4-80.060 Sheet-Metal Worker, Aircraft II
	6-94.230 Template Filer
	4-80.020 Template Lay-Out Man
	5-17.255 Template Maker IV
11	**Aircraft Assembly - Mfg.**
	5-80.390 Airplane Rigger
	5-03.554 Bench Assemblyman
	5-03.554 Cowling-Installation Assembler
	7-03.542 Detail Assembler I
	5-03.540 Detail Assembler II
	7-03.542 Ends Assembler
	5-03.572 Final Assembler I
	7-03.562 Final Assembler IV
	5-03.554 Fitting Man
	5-03.540 Fuel-and-Oil-Units Assembler
	5-03.572 Fuel-System Installer
	5-03.562 Heating-and-Ventilating-Installation Assembler
	5-03.540 Hydraulic-Control-Unit Assembler
	5-03.540 Hydraulic-Strut Assembler
	5-03.572 Hydraulic-System Checker
	5-03.840 Hydraulic Tester II
	5-03.562 Installation Mechanic
	5-03.554 Instrument-Panel Assembler
	5-03.554 Landing-Gear Assembler
	5-03.552 Major Assembler
	5-03.572 Major Assembly Installer
	5-03.562 Propeller-Installation Assembler
	7-03.542 Rib Assembler
	7-03.542 Rib-Frame Builder
	5-03.572 Rigger II
	7-03.552 Shell Fitter
	5-03.554 Skeleton Assembler I
	7-03.542 Skeleton Assembler II
	5-03.552 Skin Man
	7-03.552 Small-Parts Assembler III
	5-03.554 Small-Parts Assembler IV
	7-03.562 Soundproofing-Installation Assembler
	7-03.552 Spar Builder I
	7-03.552 Subassembler II
	5-03.554 Subassembler III
	5-03.562 Subassembly Installer I
	7-03.562 Subassembly Installer II
	7-03.552 Tail-Surface-Frame Builder
	7-03.552 Tank Builder II
	7-03.542 Tank-Fittings Assembler
	5-03.554 Wing-Frame Builder
12	**Aircraft Riveting - Mfg.**
	6-95.083 Bucker-Up IV
	6-95.080 Riveter, Aircraft
	6-95.074 Riveter, Angle
	6-95.081 Riveter, Hand IV
	6-95.082 Riveter, Pneumatic III
13	**Aircraft Woodwork - Mfg.**
	4-33.916 Airplane Woodworker I
	6-33.411 Boring-Machine Operator, Horizontal
	6-33.411 Boring-Machine Operator, Vertical
	4-32.100 Cabinetmaker I
	4-33.912 Lay-Out Man
	5-83.311 Machine Set-Up Man IV
	4-33.914 Millman
	4-33.461 Planer Operator IV
	7-84.230 Saw Filer, Hand
	7-84.240 Saw Filer, Machine
	4-33.311 Universal-Woodworking-Machine Operator
	6-33.224 Variety-Saw Operator
14	**Aircraft Engines - Mfg.**
	5-03.572 Engine-Installation Assembler
	5-80.390 Engine Tester
15	**Aircraft Machine Shop - Mfg.**
	4-75.141 Metal-Propeller Lay-Out Man
	6-78.112 Profiling-Machine Operator III
16	**Aircraft Electricity - Mfg.**
	7-00.938 Detail Electrical Assembler
	7-03.580 Electric-Conduit Installer
	5-83.447 Electrician, Aircraft Radio
	4-97.910 Electrician, Airplane
17	**Aircraft Welding, Electric (Heavy) - Mfg.***
	For representative occupations, see Code 80, Welding Electric (Heavy)

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
18	Aircraft Welding, Electric (Light) - Mfg.* For representative occupations, see Code 80
19	Aircraft Welding, Gas (Heavy) - Mfg.* For representative occupations, see Code 82, Welding, Gas (Heavy)*
20	Aircraft Welding, Gas (Light) - Mfg.* For representative occupations, see Code 83, Welding, Gas (Light)*
21	Aircraft Cutting, Gas and Arc - Mfg. For representative occupations, see Code 84, Cutting, Gas, and Arc
23	Aircraft Patternmaking - Mfg. 5-17.060 Form Builder I 5-17.240 Mock-Up Assembler 5-17.248 Patternmaker XI
24	Aircraft Inspection - Mfg. 5-03.810 Airplane Inspector 5-03.812 Final-Assembly Inspector 4-78.674 Magnaflux Inspector 5-03.820 Sheet-Metal Inspector I 6-78.671 Tank Tester II 4-80.025 Template Inspector 4-33.918 Wood Inspector
26	Aircraft Auxiliary Instruction - Mfg. (Course title should specify type of course in relation to which instruction is given, such as "Math - Aircraft Machinist.")
27	Aircraft Blueprint Reading - Mfg. (Course title should specify type of course in relation to which blueprint reading is given, such as "Blueprint Reading - Aircraft Sheet Metal.")
29	Aircraft Other - Mfg. (specify) 5-16.930 Doper I 0-48.04 Draftsman, Aeronautical 1-35.01 Engineering Clerk 1-38.04 Key Floorman 6-81.090 Lead Molder 5-17.245 Loftsman III 7-16.210 Painter, Insignia 5-77.040 Plexiglas Former 5-03.562 Plumber, Aircraft 7-03.010 Rib Stitcher 6-93.195 Rivet-Machine Operator 7-03.010 Sewer, Hand XVI 7-03.550 Soundproofing Cutter 5-16.930 Spray Man II 6-95.053 Tube-Bending-Machine Operator I 6-27.578 Zig-Zag-Machine Operator
	AIRCRAFT MAINTENANCE
30	Aircraft Mechanics - Maint. 5-83.545 Aircraft Armament Mechanic 5-80.120 Aircraft Mechanic 5-80.100 Airplane Mechanic 5-80.120 Airplane Mechanic, Line Service 5-80.120 Airplane Mechanic, Overhaul 5-80.120 Airplane-Tank-and-Cowl Mechanic 5-80.450 Hydraulic-Field-Service Mechanic 5-80.100 Wing Man
32	Aircraft Engines - Maint. 5-80.130 Aircraft-Engine Assembler 5-80.130 Aircraft-Engine-Cylinder Mechanic 5-80.130 Aircraft-Engine Dismantler 5-80.130 Aircraft-Engine Installer 5-80.130 Aircraft-Engine Mechanic 5-80.130 Aircraft-Engine Mechanic, Line Service 5-80.130 Carburetor Man I 5-80.130 Propeller Mechanic
34	Aircraft Electrician - Maint. 4-97.910 Electrician, Field Service 5-83.447 Radio Mechanic, Aircraft Installations
35	Aircraft Machine Shop - Maint. See occupations listed under Machine Shop, Code 75
36	Aircraft Fabrics and Leather - Maint. 5-03.010 Airplane Coverer 6-27.042 Cutter, Hand VI 6-27.054 Cutter, Machine I 5-03.030 Fabric Worker I 6-27.502 Sewing-Machine Operator 4-35.720 Upholsterer II
37	Aircraft Welding, Electric (Heavy) - Maint.* For representative occupations, see Code 80, Welding, Electric (Heavy)*
38	Aircraft Welding, Electric (Light) - Maint.* For representative occupations, see Code 80
39	Aircraft Welding, Gas (Heavy) - Maint.* For representative occupations, see Code 82, Welding, Gas (Heavy)*

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
40	Aircraft Welding, Gas (Light) - Maint.* For representative occupations, see Code 83, Welding, Gas (Light)*
41	Aircraft Cutting, Gas and Arc - Maint. For representative occupations, see Code 84, Cutting, Gas, and Arc
49	Aircraft Other - Maint. (specify) 5-80.910 Airplane Inspector II 5-80.600 Balloon-Envelope Repairman 5-80.700 Balloon Rigger 6-27.142 Canopy Inspector 6-27.965 Canopy Stringer 5-83.973 Instrument Inspector 5-83.972 Instrument Man IV 6-27.502 Parachute Baster 6-27.502 Parachute-Cover Sewer 7-49.021 Parachute Packer 7-49.023 Parachute Repairman 6-27.141 Seat-Pack Inspector 6-27.110 Sewer, Hand XIV 6-27.111 Sewer, Hand XV 6-27.502 Sewing-Machine Operator 6-27.578 Zig Zagger
	SHIPBUILDING
50	Ship Loft 5-17.210 Loftsman II 5-05.710 Mold Checker II 5-17.260 Template Maker, Wire
51	Shipfitting 4-84.012 Assembler 4-80.070 Boatbuilder, Steel 6-88.631 Cold-Press Operator 6-84.150 Driller VI 4-88.743 Flange Turner II 6-88.742 Flanging-Press Operator 4-86.020 Furnaceman XII 4-84.611 Grating Maker 5-30.020 Hangerman 4-95.051 Hot Bender III 5-05.530 Lay-Out Man 6-88.626 Nibbler Operator 6-84.130 Plate Hanger 6-84.450 Rivet Tester 4-84.060 Riveter V 6-84.620 Riveter, Hydraulic 6-84.640 Riveter, Pneumatic I 4-84.060 Riveter, Pneumatic II 5-05.550 Scarfer III 4-84.012 Shipfitter 5-05.620 Straightener V
52	Ship Carpentry and Woodworking 5-05.510 Batten Maker 4-33.366 Boat-Oar Maker 5-25.610 Boatbuilder, Wood 5-25.640 Carpenter, Fairing 5-25.640 Carpenter, Ship 5-25.650 Joiner VI
	5-25.640 Sparmaker 5-17.220 Template Maker III
53	Ship Sheet Metal 4-88.622 Sheet-Metal Installer 4-88.622 Sheet-Metal Worker III
54	Ship Plumbing and Pipe Fitting 5-33.110 Asbestos Worker, General 4-80.080 Coppersmith II 5-05.630 Layer-Out, Piping 5-30.030 Pipe Assemblyman 5-30.010 Pipe Fitter I 5-30.015 Pipe Fitter II 5-30.260 Plumber II 5-30.410 Steam Fitter
55	Ship Electrician 4-97.210 Electrician, Ship 4-97.220 Electrician, Shop 4-97.230 Electrician, Yard
56	Ship Machine Shop 4-78.063 Draw-Cut-Shaper Operator 6-78.293 Flange-Facing-Machine Operator 4-78.011 Lathe Operator, Large 6-78.071 Plate-Edge-Planer Operator
57	Outside or Marine Machinists 5-83.642 Machinist, Marine Gas Engine 4-75.150 Machinist, Outside
60	Ship Welding, Electric (Heavy)* For representative occupations, see Code 80, Welding, Electric (Heavy)*
61	Ship Welding, Electric (Light)* For representative occupations, see Code 80
62	Ship Welding, Gas (Heavy)* For representative occupations, see Code 82, Welding, Gas (Heavy)*
63	Ship Welding, Gas (Light)* For representative occupations, see Code 83, Welding, Gas (Light)*
64	Ship Cutting, Gas, and Arc For representative occupations, see Code 84, Cutting, Gas, and Arc
66	Shipbuilding Auxiliary Instruction (Course titles should specify type of course in relation to which instruction is given, such as "Math - Shipfitters.")
67	Shipbuilding Blueprint Reading (Course titles should specify type of course in relation to which blueprint reading is given, such as "Blueprint

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
67	Shipbuilding Blueprint Reading (Cont.)
	Reading - Loftsmen.*)
69	Shipbuilding Other (specify)
	4-27.811 Canvas Worker II
	6-27.042 Cutter, Hand VI
	0-48.16 Draftsman, Marine
	6-52.371 Gas-Plant Operator III
	5-05.511 Hull Inspector
	5-17.130 Model Maker VI
	5-27.110 Painter, Boat, Finish
	7-27.110 Painter, Boat, Rough
	4-78.671 Propeller Inspector
	0-97.53 Routeman III
	5-05.570 Ship Rigger
	4-84.110 Tank Tester I
	5-05.610 Wood Caulker II
	5-05.512 Yard Inspector
	COURSE TITLES OTHER THAN AIRCRAFT AND SHIPBUILDING
70	Foundry
	4-82.010 Coremaker I
	5-24.130 Cupola Repairman
	4-82.920 Die-Casting-Machine Operator II
	6-82.620 Flask Maker, Metal
	4-91.571 Furnace Tender, Coal or Coke
	4-91.571 Furnace Tender, Oil or Gas
	6-81.010 Machine Molder, Jarring
	4-81.050 Machine Molder, Squeeze
	7-10.014 Molder
	4-81.010 Molder, Bench
	4-81.020 Molder, Finish
	4-81.030 Molder, Floor
	4-81.040 Molder, Pattern
	6-91.585 Pyrometer Man II
71	Sheet Metal
	4-80.010 Bench Hand IX
	6-94.215 Forming-Machine Operator IV
	6-88.627 Forming-Press Operator I
	6-94.204 Rotary-Shear Operator II
	6-94.202 Sheet-Metal-Fabricating-Machine Operator
	4-80.020 Sheet-Metal Lay-Out Man I
	4-80.010 Sheet-Metal Worker II
	6-94.205 Slitting-Machine Operator II
	4-94.201 Spinner IV
	4-80.010 Tinsmith
72	Electricity
	6-99.111 Armature Bander
	6-99.011 Armature Winder I
	6-99.011 Armature Winder II
	6-99.011 Armature Winder, Repair
	7-00.211 Armoring-Machine Operator
	5-53.950 Cable Splicer II
	6-99.120 Coil Taper, Machine
	4-99.161 Commutator Assembler
	4-99.411 Dynamic Balancer
	5-83.431 Electric-Motor Analyst
	6-99.166 Electric-Motor Assembler
	5-83.432 Electric-Motor Assembler and Tester
	5-83.433 Electric-Motor Repairman
	5-00.933 Electrical Adjuster
	4-97.930 Electrical Inspector II
	4-97.420 Electrical Repairman
	5-53.360 Electrical Tester I
	4-98.010 Electrical Tester II
	4-97.010 Electrician
	4-97.410 Electrician, Machine Shop
	4-97.510 Electrician, Power-House
	4-99.432 Final Tester II
	5-00.912 Instrument Maker I
	4-99.012 Magnet Winder
	6-78.674 Magnetic Inspector
	7-53.020 Plant Wireman
	4-99.172 Power-Transformer Assembler
	4-99.162 Rotor Assembler
	5-51.210 Substation Operator
73	Automotive Mechanics
	5-81.410 Automobile-Generator Repairman
	5-81.010 Automobile Mechanic
	5-81.610 Automobile Mechanic, Motor I
	5-81.530 Automobile-Radiator Man
	5-81.910 Automobile-Repair Serviceman
	5-81.920 Automobile Tester
	5-81.110 Brake-Drum-Lathe Operator
	7-02.711 Carburetor Inspector
	7-81.610 Carburetor Man II
	7-02.713 Dynamometer Tester, Motor
	7-83.421 Electric-Try-Out Man
	5-81.420 Electrician, Automotive
	7-02.357 Motor Adjuster
	5-81.620 Motor Analyst
	5-81.020 Motorcycle Repairman
	7-02.371 Switchpanel Man
	5-81.030 Truck Mechanic
	7-81.210 Wheelwright II
74	Inspection and Testing
	0-50.50 Ammunition Proof Technician
	7-02.351 Balancer I
	4-78.675 Checker
	6-78.680 Connecting-Rod Inspector
	6-93.771 Final Inspector III
	6-93.772 Final Inspector IV
	4-76.220 Gage Inspector
	6-78.672 Gager I

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
74	Inspection and Testing (Cont.)
4-87.910	Hardness Inspector
6-54.038	Inspector
4-78.671	Inspector
4-82.910	Inspector, Chief I
7-08.032	Lens Inspector II
6-54.033	Mercury-Cracking Tester
6-94.218	Metal-Stamping Inspector
7-02.744	Paint-Spray Inspector
5-17.257	Pattern-and-Foundry Inspector I
6-54.036	Primer Inspector
6-94.658	Roller-Bearing Inspector
4-88.321	Seamless-Tube Inspector
6-78.676	Sheet-Metal Inspector II
0-50.37	Sheet Tester
6-78.673	Shell Inspector
6-78.674	Steelscope Operator
7-76.950	Structural-Steel Inspector II
4-84.110	Tank Tester I
6-78.671	Tester I
6-78.671	Tester II
4-93.773	Testing-Machine Operator II
4-76.220	Tool Inspector
7-02.724	Torsion Tester
7-02.725	Transmission Tester
4-85.070	Welding Inspector
75	Machine Shop
6-78.911	Babbitter I
4-78.911	Babbitter II
6-78.151	Barrel Centerer
4-78.212	Barrel Chamberer
4-78.213	Barrel Driller
4-78.211	Barrel Reamer
4-78.214	Barrel Rifler
6-78.291	Barrel Threader
4-78.011	Barrel Turner
6-77.710	Bench Grinder
4-75.120	Bench Repairman I
6-78.041	Boring-Machine Operator, Automatic
4-78.041	Boring-Mill Operator
4-75.120	Broacher, Hand
6-78.051	Broaching-Machine Operator
6-77.320	Burnisher, Hand
6-77.510	Burrer, Hand
6-78.511	Centerless-Grinder Operator
7-02.011	Crankshaft Plugger
4-78.511	Cylindrical-Grinder Operator I
6-78.521	Cylindrical-Grinder Operator II
4-76.110	Die Assembler
4-76.010	Die Finisher
4-76.010	Die Grinder
4-75.140	Die-Lay-Out Man I
4-76.010	Die Maker II
4-76.010	Die Repairman
4-76.120	Die Setter I
4-76.120	Die Setter, Drop Hammer
4-76.010	Die-Try-Out Man
6-78.634	Electrical Assembler II
4-78.011	Engine-Lathe Operator I
6-78.011	Engine-Lathe Operator II
6-78.513	External-Grinder Operator I
4-78.291	Filer, Machine
6-78.632	Floor Assembler
6-78.631	Frame Assembler III
4-78.131	Gear-Generator Operator I
6-78.133	Gear-Generator Operator II
4-78.132	Gear-Hobber Operator I
6-78.134	Gear-Hobber Operator II
7-02.715	Gear Matcher
4-78.133	Gear-Milling-Machine Operator I
6-78.135	Gear-Milling-Machine Operator II
4-78.134	Gear-Shaper Operator I
6-78.136	Gear-Shaper Operator II
6-78.132	Gear-Tooth Grinder
6-78.163	Gisholt-Lathe Operator
6-77.040	Grinder
6-78.211	Grooving-Machine Operator I
6-77.750	Guide Grinder
6-78.084	Gun-Barrel-Drill Operator
6-78.021	Head-Turn-Machine Operator
4-78.411	Honing-Machine Operator
6-78.412	Honing-Machine Operator, Semiautomatic
4-78.042	Horizontal-Boring-and-Milling-Machine Operator
7-02.721	Hypoid-Testing Machine Operator
4-75.130	Instrument Maker II
4-78.512	Internal-Grinder Operator I
6-78.523	Internal-Grinder Operator II
6-78.121	Internal-Keyseating-Machine Operator
4-78.043	Jig-Boring-Machine Operator
4-75.160	Job Setter II
4-76.910	Keller-Machine Operator
6-78.413	Lapping-Machine Operator
6-78.164	Lathe Operator, Automatic I
4-75.140	Lay-Out Man
4-75.010	Machinist II
4-75.120	Machinist, Bench
4-75.010	Machinist, Maintenance
6-77.530	Metal Finisher, Hand Filing
4-78.031	Milling-Machine Operator II
5-78.100	Millwright
6-78.081	Multiple-Spindle-Drill-Press Operator
6-78.292	Multipurpose-Machine Operator

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
	4-78.071 Planer Operator II
	6-77.060 Polisher II
	4-78.111 Profiling-Machine Operator I
	6-78.111 Profiling-Machine Operator II
	6-78.082 Radial-Drill Operator III
	6-78.082 Radial-Drill-Press Operator
	6-78.167 Riveting-Tool Grinder
	6-78.515 Rotary-Surface-Grinder Operator
	6-94.227 Router Operator III
	4-78.021 Screw-Machine Operator
	6-78.144 Screw-Machine Operator, Semiautomatic
	4-75.160 Screw-Machine-Set-Up Man, Automatic
	4-78.061 Shaper Operator I
	6-33.364 Shaper Operator II
	4-78.062 Shaper Operator, Portable
	6-78.083 Single-Spindle-Drill-Press Operator
	4-78.012 Speed-Lathe Operator
	4-78.513 Surface-Grinder Operator I
	6-78.522 Surface-Grinder Operator II
	6-78.516 Thread Grinder
	4-87.230 Tool Hardener
	4-76.210 Tool Maker
	4-78.021 Turret-Lathe Operator
	6-78.021 Turret-Lathe Operator, Automatic
	4-78.511 Universal-Grinder Operator
	4-78.022 Vertical-Turret-Lathe Operator
	6-78.166 Wheel-Lathe Operator
76	Radio and Communication
	5-53.340 Cable Tester
	5-83.445 Electrician, Radio I
	5-53.420 Lineman IV
	4-98.040 Radio-Chassis Aliner
	4-98.050 Radio-Equipment Assembler, Special
	5-83.447 Radio Mechanic II
	0-61.30 Radio Operator
	5-83.411 Radio Repairman I
	6-98.310 Radio-Transmitter Assembler
	4-98.060 Receiver Tester
	5-53.030 Station Installer II
	6-98.290 Testing-Machine Operator IV
	0-61.80 Transmitter Tester
	5-83.413 Trouble Shooter VI
	6-98.250 Universal-Winding-Machine Operator
	5-53.320 Wire Chief I
78	Industrial Chemicals and Explosives
	6-52.711 Absorberman
	6-52.413 Acid Man VIII
	4-52.711 Autoclave Operator
	4-52.410 Beater Operator II
	6-52.712 Bleacher Operator I
	6-52.437 Blender IX
	6-52.431 Block-Breaker Operator
	6-52.442 Block-Press Operator II
	6-52.454 Boiling-Tub Operator II
	6-52.465 Boiling-Tub Operator III
	4-52.721 Chamberman I
	4-52.722 Chamberman II
	6-52.476 Checker
	6-52.488 Composition Man
	6-52.486 Cotton-Weigher Operator
	6-52.423 Cotton-Wringer Operator I
	6-52.451 Crystallizer Operator III
	6-52.448 Dissolver Operator
	4-52.411 Dope Mixer I
	6-52.426 Drier Operator I
	6-52.445 Graining-Press Operator
	6-52.751 Grinder Operator IV
	6-52.741 Lye Treater
	6-52.443 Macaroni-Press Operator
	4-52.472 Mixer Operator VIII
	6-52.487 Mixer Operator IX
	6-52.415 Nitrator Operator I
	4-52.481 Ordnanceman
	6-52.433 Powder-Cutting Operator
	6-52.455 Powder-Stacking-Machine Operator
	6-52.456 Putteeing-Machine Operator
	6-52.714 Rectifier Operator I
	4-52.731 Still Operator
	4-55.030 Stillman II
	4-55.010 Stillman, Gas Plant
	6-52.446 Solvent - Recovery Man
	6-52.441 Sulphator Operator
	6-52.480 Tetryl-Blender Operator
	6-52.467 Tetryl-Dissolver Operator
	4-52.446 Tetryl-Nitrator Operator
	6-52.482 Tetryl-Screen Operator
	6-52.471 Vacuum-Pan Operator II
80	Welding, Electric (Heavy)*
	4-85.310 Brazer
	4-88.312 Tubing-Machine Operator I
	4-85.060 Ring Welder
	4-85.080 Unionmelt Operator
	4-85.020 Welder, Arc
	4-85.060 Welder, Atomic
	6-85.020 Welder, Butt
	6-85.030 Welder, Flash
	6-85.100 Welder, Roller Seam
	6-85.060 Welder, Spot
	6-85.080 Welder, Tack
	4-85.020 Welding Tester
81	Welding, Electric (Light)* (Same as Code 80)
82	Welding, Gas (Heavy)*
	4-85.310 Brazer
	4-85.030 Welder, Acetylene

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
83	Welding, Gas (Light)*
	4-85.310 Brazer
	7-02.015 Solderer, Torch I
	4-85.030 Welder, Acetylene
84	Cutting, Gas, and Arc
	6-85.215 Acetylene-Burner Operator
	6-85.215 Flame-Cutter Operator
	6-85.240 Flame-Cutting Machine Operator
	6-85.220 Oxyacetylene-Cutting-Machine Operator
	6-85.240 Radiagraph Operator
85	Patternmaking
	5-17.010 Bench Hand, Metal Patterns
	5-17.070 Model Maker II
	5-17.010 Patternmaker, Metal
	5-17.020 Patternmaker, Wood
	5-17.250 Plaster-Pattern Caster
	5-17.110 Sample-Body Builder
86	Forging and Blacksmithing
	6-88.621 Angle Puncher and Shearer
	6-88.611 Arbor-Press Operator
	6-88.732 Barrel Heater
	4-88.027 Barrel Roller II
	4-93.772 Barrel Straightener
	4-88.742 Bending-Roll Operator
	4-86.010 Blacksmith II
	6-83.130 Boiler Tester
	4-83.100 Boilermaker
	6-93.192 Coiler I
	4-86.150 Dishing-Machine Operator
	4-86.170 Drop-Hammer Operator IV
	4-88.991 Extruder Operator II
	4-83.300 Fit-Up Man
	6-88.742 Flanging-Press Operator
	4-88.624 Joggle-Press Operator
	4-88.081 Heater III
	4-83.200 Lay-Out Man
	4-84.030 Metal-Tank Worker
	6-88.622 Punch-Press Operator I
	6-88.624 Punch-Press Operator, Automatic
	6-88.625 Punch-Press Operator, Hand
	4-86.140 Sectional-Hydraulic-Press Operator
	6-88.613 Straightener, Hand
	6-88.612 Straightening-Press Operator
	4-84.620 Structural-Steel Lay-Out Man
	4-84.010 Structural-Steel Worker
	4-84.630 Template Maker, Structural Steel
	5-84.010 Tool Dresser I
	7-84.010 Tool Dresser II
87	Instrument Making
	7-08.018 Instrument-Lens-Centerer-and Edger
	5-83.971 Instrument Repairman
	4-75.130 Jeweler II
	5-08.045 Lens-Edge Grinder, Hand
	5-09.050 Lens Molder
	5-09.030 Mounter IV
	5-08.071 Precision-Lens Grinder
	5-08.065 Prism Measurer
95	Foremanship and Job Instructor Training
	4-86.010 Blacksmith Foreman
	4-83.100 Boilermaker Foreman
	5-95.030 Foreman (air trans.)
	5-92.411 Foreman (aircraft mfg.)
	5-92.578 Foreman (alum.prod.)
	5-91.891 Foreman (ammunition)
	5-92.601 Foreman (elec.equip.)
	5-91.872 Foreman (explosives)
	5-92.392 Foreman (firearms)
	5-92.391 Foreman (forging)
	5-92.311 Foreman (found.)
	5-92.903 Foreman (instr.& appl.)
	5-92.301 Foreman (iron & steel)
	5-95.320 Foreman (light, heat & power)
	5-92.401 Foreman (loco.& car bldg.& rep.)
	5-92.768 Foreman (mach.shop)
	5-92.732 Foreman (mach.tool & access.)
	5-95.020 Foreman (motor trans.)
	5-92.591 Foreman (nonfer.metal)
	5-92.901 Foreman (optical goods)
	5-91.901 Foreman (petrol.refin.)
	5-92.904 Foreman (phot.apparatus)
	5-92.621 Foreman (radio mfg.)
	5-95.040 Foreman (r.r.trans.)
	5-92.592 Foreman (sheet metal)
	5-92.422 Foreman (ship & boat bldg.& rep.)
	5-92.433 Foreman (tanks)
	5-95.220 Foreman (tel.& tel.)
	5-92.331 Foreman (wire)
	5-91.501 Foreman (woodworking)
	4-80.010 Sheet-Metal Worker Foreman
	5-92.301 Sheet Roller I
	5-05.570 Ship-Rigger Foreman
	4-85.010 Welder Leadman
96	Auxiliary Instruction (Course title should specify type of course in relation to which instruction is given, such as "Math - Machinist.")
97	Blueprint Reading (Course title should specify type of course in relation to which blueprint reading is given, such as "Blueprint Reading - Sheet Metal.")

CODE	STANDARD COURSE TITLE AND OCCUPATIONS
99	Miscellaneous (specify)
6-87.110	Annealer I
6-87.150	Annealing-Bath Operator
5-83.541	Armorer
4-93.771	Assembler
5-10.011	Bakelite Mixer
5-92.302	Bessemer-Converter Blower
6-93.777	Bluer II
7-83.326	Bullet-Assembly-Press Adjuster
5-79.020	Carman V
4-87.210	Case Hardener
7-83.326	Centerless-Grinding-Machine Adjuster
7-83.326	Charging-Machine Adjuster
5-83.651	Coke-Oven Repairman
5-89.011	Diver
0-48.18	Draftsman, Mechanical
7-83.326	Draw-Press Adjuster
6-99.901	Extrusion-Press Operator II
7-70.040	Fireman, Stationary Boiler
6-87.142	Flame-Annealing-Machine Adjuster
7-83.326	Forming-Press Adjuster
4-87.412	Furnaceman XI
7-83.326	Gage-and-Weigh-Machine Adjuster
6-56.010	Gas-Producer Man
7-62.311	General Assembler I
5-77.010	Glazier V
5-83.542	Gunsmith
4-87.220	Hardener II
4-62.120	Harness Repairman
4-87.010	Heat Treater II
5-72.090	Hot-Mill Engineer
7-83.326	Inspecting-Machine Adjuster
4-91.573	Iron Puddler
4-95.031	Lead Burner
6-62.160	Leather Worker II
7-83.326	Loading-Machine Adjuster
7-83.326	Machine Adjuster III
5-83.641	Maintenance Mechanic II
5-83.621	Master Mechanic, Maintenance
4-91.444	Melter IV
6-91.722	Molder, Lead
7-16.210	Painter, Spray I
6-34.020	Pellet-Press Operator
6-88.351	Piercing-Mill Operator
4-74.010	Plater I
5-30.210	Plumber I
6-34.053	Primer Assembler
7-83.326	Primer-Inserting-Machine Adjuster
1-18.66	Production Clerk II
4-88.012	Pulpit Man II
4-91.441	Reverberatory-Furnace Operator
6-95.074	Riveting-Machine Operator IV
4-88.026	Roller, Bar Mill
6-77.330	Roller Operator II
4-88.313	Seamless-Tube Roller
4-88.025	Sheet Roller II
6-34.091	Shell Assembler
6-93.773	Sighter
6-93.774	Star-Gage Operator
5-72.010	Stationary Engineer
5-83.641	Steam-Hammer Repairman
1-38.04	Stock-Control Clerk
7-62.321	Subassembler I
7-83.326	Swaging-Machine Adjuster
4-87.410	Switchboard Operator II
6-87.310	Temperer III
4-87.310	Temperer V
4-91.572	Tilting-Furnace Operator
1-38.05	Tool Clerk
0-48.41	Tool Designer
7-84.110	Tool Grinder II
5-84.110	Tool-Grinder Operator
0-48.31	Tracer IV
7-89.426	Tread Cutter, Hand
7-89.427	Tread Cutter, Machine
7-83.326	Trim-Machine Adjuster
4-88.342	Tube Bender I
4-88.342	Tube Bender II
5-27.140	Varnisher VIII
4-88.341	Welder, Butt, Tube
6-85.070	Welder, Thermite

* Heavy - Metal sheets, plates, structural shapes, and pipe 3/16 inch thick and over

* Light - Metal sheets, tubing, and structural shapes of thickness under 3/16 inch (or No. 7 USS Gage)

PART IV

DEFINITIONS OF SELECTED WAR INDUSTRIES

AS LISTED IN PART I

INDUSTRY NUMBER	DEFINITION OF THE INDUSTRY
1911	Guns, Howitzers, and Mortars Description. Establishments primarily engaged in manufacturing naval, aircraft, anti-aircraft, tank, coast, and field artillery, including mortars, having a bore greater than .60 inches, and component parts. This industry includes the manufacture of gun turrets, mounts, carriages, and limbers; turret and mount parts--cast, forged, and machined.
1921	Ammunition, Except for Small Arms Description. Establishments primarily engaged in manufacturing ammunition over caliber .60 for naval, aircraft, anti-aircraft, tank, coast, and field artillery, including component parts (cartridge cases, projectile forgings, fuses, etc.), mortar ammunition, grenades, bombs, mines and mine parts, torpedoes, and chemical-warfare projectiles. This industry includes the loading and assembly of all ammunition except small-arms ammunition (caliber .60 and under).
1931	Tanks Description. For purposes of this list, establishments primarily engaged in manufacturing tanks, and in the maintenance and repair of trucks, jeeps, motorcycles, and other motor vehicles or parts used for military purposes, excluding tank armament (Industry 1911).
1941	Sighting and Fire-Control Equipment Description. Establishments primarily engaged in manufacturing sighting and fire-control equipment without optical elements, such as bomb sights, gun data computers, percentage correctors, wind correctors, directors, and sound locators.
2804	Explosives Description. Establishments primarily engaged in manufacturing explosives, such as nitroglycerine, dynamite, blasting and smokeless powder, safety fuses, and detonating caps. The manufacture of small-arms ammunition is included in Industry 2892, ammunition except for small arms in Industry 1921.
2892	Small-Arms Ammunition Description. Establishments primarily engaged in manufacturing ammunition for small arms of caliber .60 and under. Establishments manufacturing ammunition except for small arms are classified in Industry 1921, blasting and detonating caps and fuses in Industry 2804.
2911	Petroleum Refining Description. Establishments primarily engaged in refining crude petroleum by distillation, and producing gasoline, fuel oils, lubricating oils, illuminating oils, and other petroleum products. Establishments producing gasoline from natural gas at the wells are not included in the manufacturing industries.

INDUSTRY NUMBER	DEFINITION OF THE INDUSTRY
3312	Steel Works and Rolling Mills Description. Establishments primarily engaged in converting pig iron, scrap iron, and scrap steel into steel, and in hot-rolling iron and steel. In many establishments the manufacturing processes are carried beyond the rolling stage. The production of steel castings by independent steel foundries is classified in Industry 3323.
3321	Gray-Iron Castings Description. Establishments primarily engaged in manufacturing gray-iron and semi-steel castings.
3322	Malleable-Iron Castings Description. Establishments primarily engaged in manufacturing malleable-iron castings.
3323	Steel Castings Description. Establishments primarily engaged in manufacturing steel castings.
3397	Firearms (Caliber .60 and Under) Description. Establishments primarily engaged in manufacturing small firearms of caliber .60 and under, such as machine guns, automatic arms, pistols, revolvers, rifles and shotguns; and parts for small firearms.
3411	Locomotives and Parts Description. Establishments primarily engaged in building and rebuilding rail-traction locomotives (including frames and parts) of any type; steam, compressed air, straight-electric storage battery, Diesel-electric, gasoline-electric, and straight internal combustion.
3412	Railroad, Street, and Rapid-Transit Cars, and Car Equipment Description. Establishments primarily engaged in building and rebuilding railroad, street, and rapid-transit cars and car equipment for operation on rails for freight and passenger service. Some of these cars may include an engine as an integral part of the car.
342	Aircraft and Parts
	Aircraft Description. Establishments primarily engaged in manufacturing airplanes, dirigibles, gliders, balloons, and parachutes.
	Aircraft Parts Description. Establishments primarily engaged in manufacturing parts especially designed for aircraft, such as aircraft engines, propellers, propeller blades, and pontoons. This industry does not include the manufacture of aeronautical instruments or aeronautical electrical equipment.

INDUSTRY NUMBER	DEFINITION OF THE INDUSTRY
343	Ship and Boat Building and Repairing
	Shipbuilding and Ship Repairing Description. Establishments primarily engaged in building and repairing all types of ships of five gross tons and over. This industry includes ships propelled by sail or motive power, and also such craft as barges, canal boats, and lighters.
	Boatbuilding and Boat Repairing Description. Establishments primarily engaged in building and repairing all types of boats of less than five gross tons, such as motorboats, sailboats, rowboats, lifeboats, and canoes.
353	Rolling, Drawing, and Alloying of Nonferrous Metals
	Rolling and drawing of Copper and Copper Alloys Description. Establishments primarily engaged in rolling and drawing copper, brass, bronze, and monel-metal plates, rods, sheets, wire, and tubing. Establishments primarily engaged in producing primary copper alloys are included in this industry. Establishments primarily engaged in recovering copper and its alloys from scrap or dross are classified in Industry 3521.
	Rolling, Drawing, and Alloying of Nonferrous Metals Description. Establishments primarily engaged in alloying, rolling, and drawing nonferrous metal plates, rods, sheets, wire, and tubing, other than copper and aluminum.
3561	Aluminum and Magnesium Products Description. Establishments primarily engaged in manufacturing aluminum or magnesium castings, bars, rods, plates, tubes, wire, and sheets; stamped, spun, or cast aluminum ware such as kitchen and hospital utensils, household appliances (except electric, Industry 3521), and other aluminum or magnesium products.
36	Electrical Machinery Description. This group of industries, includes establishments engaged in manufacturing any type of machinery, apparatus and supplies for the generation, storage, transmission, transformation, and utilization of electric energy.
37	Machinery (Except Electrical) Description. This group of industries includes establishments engaged in manufacturing machinery, prime-movers, engines and turbines, construction, mining, and machine tools.
391	Professional and Scientific Instruments Description. This group of industries includes establishments engaged in manufacturing professional and scientific equipment, photographic apparatus and optical goods.

INDUSTRY NUMBER	DEFINITION OF THE INDUSTRY
4321	Air Transportation (Common Carrier) Description. Common-carrier air lines primarily engaged in the transportation of passengers, mail, express, and freight. This industry does not include companies primarily engaged in charter flying, and air-transportation services such as aerial advertising, aerial photography, and crop dusting.
46	Communication: Telephone and Telegraph Description. This group of industries includes companies engaged in furnishing communication services to the general public by telephone, telegraph, and other communication systems.
48	Utilities: Electric and Gas Description. This group of industries includes companies furnishing electricity and gas to the general public for heating, power, and illuminating purposes.

U. S. GOVERNMENT PRINTING OFFICE: 1943

WOMEN'S BUREAU
U.S.Department of Labor
Washington

TRAINING OF WOMEN FOR DEFENSE WORK

It has long been the custom in industrial plants for training to be done on the job.

In the plants visited by the Women's Bureau this system of training on the job was found, and men as well as women were given some training on jobs on which they were working.

While such training existed in most plants, this investigation did not go into detail as to its extent and method.

Some employers stated that they felt preliminary training for women in the reading of blueprints, in shop practice, and in shop routine would be of great assistance in connection with the additional training on the job.

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Report on Survey of Training of Women in the Engineering, Science and Management War Training Courses in New York City.

In Region #4, covering New York City and Long Island, there are thirteen different colleges conducting or planning to conduct classes for women and women under the [illegible]. Many of these courses will start the middle of January and while enrollment has started, it was difficult to obtain more information than that it was progressing fairly satisfactorily.

I visited three of the schools and talked on the phone to several others with the following findings:-

Brooklyn Polytechnic Institute has opened its courses to women, but has as yet had only a few. Have had more women in their course on Topographic Map Drafting, at which those who have had some art background are good, but the proportion in the present class is only three or four out of thirty-five men. They also have about the same proportion of women in the mechanical drawing class. It was stated that there would be no difficulty in placing the women in and within commuting distance of New York, but their women applicants are few as this Institute has been a man's engineering school and would have to be "sold" to the women in terms of what it had to offer them as it was not a "natural" for them. There has been an increase in inquiries from women as it became known that they are eligible, but it is not as yet increasing as rapidly as it should. While there has been some publicity of a general nature, there is a great deal of room for a more forceful barrage of publicity. The opinion was also expressed that there is need for vocational guidance and direction by the high schools and colleges, U.S.E.S., and Civil Service to increase the interest of women equipped for this training and direct them into training channels.

At Brooklyn College, the only course under [illegible] is one for men enlisted in the Signal Corps. However, they have a number of courses as part of their regular curriculum which are considered war courses by their committee which has been studying the problem of preparing women to meet the manpower shortage. It was stated that this college has more calls for graduates who have majored in physics and chemistry than they can fill. Included is a course in Cryptography which is an elective course and is being chosen more and more by women. However, the number choosing these war courses is still small in proportion to total women enrolled. It was stated that while there had been no difficulty in placing their graduates and students, it was felt that there was a lack of vocational guidance with the people permitted to take some of the civil service exams, and that there should be a closer tie-up between the civil service placement and college placement. There is need for practical guidance which lets a girl know that a job at $2,000. in Washington or a war center does not mean what $2,000. does in New York, for instance, and that many of the girls had accepted these posts and given them up later in disappointment because of living conditions, expenses, etc., whereas if they had been pre-conditioned this might not have happened.

The Defense Training Institute, which was established in 1940 by the Engineering Colleges of Greater New York, is doing the most effective job, as far as I could ascertain, in training of women under these courses. They started a 30 week course in October, and in a class of about 350, had fifty to seventy-five women. About 60% of the women finished the course, and were immediately placed directly by the school in Sperry-Gyroscope and

the aircraft plants on Long Island, etc. These women range from 17 to 40 years of age and are taken regardless of age if their background is suitable and they think they are placeable. They have recruited them thru news articles, some radio, bulletins and working with the U.S...S. They have a good process of selecting students. They are given psychological tests and interviewed by two interviewers but the final selection is made by the Director and those eliminated who are not suitable for industry. In the two years, they have finished about 100 women who have been mostly of the housewife type, some married and several with two children. Some of the older ones could not stand the strain. Some personnel men from industry come right to the school and interview, and they could place many more than they have finished. They are starting another course of 20 weeks in February, and they expect at least 90% of the class to be women. They are not able to train more than 400 in a 30-week period, with the facilities they have. Here I saw many women in the class rooms, apparently quite at ease and very much interested.

Columbia, Long Island University, Manhattan College, and Pratt are starting courses during January and February. Cooper Union is also starting a course for women this month in Engineering drafting. This seems to be one of the few courses designed especially for women. Most of the courses are for both men and women.

****

My general conclusions are that a great deal of good planning is being done for the training of women, but there needs to be carried on a continuous publicity campaign to get women to this training. All of the schools seem to have sufficient money, teachers and equipment to train the pupils once they get them, but not the talent or the funds to do the

recruitment of women, and as long as their courses are fairly well filled by men, the women applicants are more incidental. They all stated that they believed "more and more" they would be having women enroll in these courses, but seem to have no plans to break down the resistance on the part of the women of college level going into work that is predominently a man's work, and where they believe they will be only for the duration. Some effort should be made to sell girls and women the idea that engineering training of any kind is an excellent background for any business career, and will be an asset in the post-war world in any industry. It teaches the scientific method of approach, fact finding, accuracy and precision, and just as this has proven an asset to men in all businesses in the last ten years, so will it prove of value to women in the years to come. This they must be made to see.

Also there seems to be a need for a vocational guidance tie-up that leads to this training. There seems to be little follow-up of the pupils after they are placed on jobs to see how they turn out. It was stated that an occasional student would come back in to report, or to find another job, but they were usually lost in the shuffle, and the only indication they have of their proper training is that the industries who use them come back for more. Lack of money for postage, follow-up and time to do it was given as the reason for inability to get this worth-while information.

When these new classes get started, it would be interesting to have a report on the increased registration, and whether the limited publicity now given the courses is sufficient to increase enrollment to the necessary proportions.

I was unable to visit City College, Hunter or Hofstra.

War Man Power Comm
Training

ARMY SERVICE FORCES
CIVILIAN PERSONNEL INFORMATION BULLETIN

NO. 3

Guide to
TRAINING WOMEN FOR WORK
WITH
THE ARMY SERVICE FORCES



HEADQUARTERS, ARMY SERVICE FORCES, 15 APRIL 1944

HEADQUARTERS ARMY SERVICE FORCES,
Washington 25, D. C., 15 April 1944.

Army Service Forces Civilian Personnel Informational Bulletin No. 3, Guide to Training Women for work with the Army Service Forces, has been prepared under the supervision of the Director, Industrial Personnel Division, Headquarters Army Service Forces, and is published for the information and guidance of all concerned.

(SPX 230.14 (3 Apr 44).)

By command of Lieutenant General SOMERVELL:

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Chief of Staff.

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FOREWORD

Training, always a powerful factor in production, is more vital to the flow of supplies to our Armies than ever before. As inexperienced women workers replace men selected for Service, training provides a key to the maintenance of production levels in spite of the loss of skilled personnel. As it becomes necessary to do the same amount of work with fewer workers in an installation, training provides a means of increasing per-capita production.

More than 350,000 women are employed directly by the Army Service Forces. Many of them have had little or no work experience outside their homes. Certain problems are involved in their training. To ignore these problems on the one hand, or to magnify them on the other, is equally unnecessary and costly. To recognize and solve them through selection, training, counseling, and supervision is essential to our mission.

The preparation an installation should make before women are recruited and the steps to be taken in procuring and retaining women employees have been outlined in Civilian Personnel Information Bulletin No. 3. [1] Training facilities and personnel have been discussed briefly in this connection. However, the peculiar importance of training in the full utilization of women employees and the fact that only 4 per cent of ASF women civilians were reported in training at the end of December have prompted the preparation of this additional bulletin. It is offered as a guide to civilian personnel and training officers in dealing with the special training problems involved.

Although its main purpose is to state these special problems and to indicate how training may be used in their solution, this bulletin emphasizes the fact that the basic principles governing training are the same, regardless of the sex of the trainees. In training, as in all personnel work, the differences between the individual members of any large group prove to be greater than the differences between the groups into which the members fall by virtue of their sex, nationality, or race. Against the background of the fundamental likenesses of workers, therefore, this bulletin highlights those few differences between the group of men and the group of women workers now in the labor market which may affect production adversely and suggests how those differences may be counteracted or reduced through training.

To the U. S. Civil Service Commission, the U. S. Office of Education, the War Manpower Commission, and the Women's Bureau of the U. S. Department of Labor, as well as to other branches and services of the War Department, acknowledgment is due for materials and expert criticism generously provided for use in the preparation of this bulletin.

JAMES P. MITCHELL,
Director, Industrial Personnel Division.

1 See selected readings, No. 9, p. 18.

THE SPECIAL NEED FOR TRAINING WOMEN

Forty-two percent of the civilians working for the Army Service Forces are women. From a training point of view, these women and others who may be hired in the future, form three groups:

(1) Those who have worked on jobs similar to the jobs they do in ASF. These women present no unusual training problem. Like other experienced workers, they need only to learn the phases of their jobs that are peculiar to the installation and to be given refresher or upgrading training as required.

(2) Those who have worked only on jobs unrelated to their ASF work. Women in this group must acquire new job skills and become used to a completely different work environment. If, for example, saleswomen are to learn to run lathes, they must be trained not only in the operation of the machine tool, but in the work-ways of a machine shop as contrasted with those of a store.

(3) Those who have had no work experience outside their homes. Women of this group require even more training. They need instruction not only in job skills, in the ways of the particular industry, but also in work habits, customs, and relationships. How to punch a time clock, how and when to report to supervisors, and a hundred other details familiar to the worker in shop, store, or restaurant are unfamiliar to the housewife or young graduate who comes to the Army Service Forces from this group.

Women with and without work experience are already doing good work in the Army Service Forces. The foreman of a fifth echelon automotive repair shop points with equal pride to two women selected at random from the 60 in his shop. One is a sturdy, serious-faced woman, with a son at the front. She once worked on men's clothing in busy seasons. After brief training on the job as a helper, she now sews heavy upholstery for Army vehicles The other is a slender girl in grease-smeared overalls, busily lubricating Army trucks. She took training at a vocational school to prepare for this, her first job. The success of these and other women and of those who train and supervise them is not accidental; it is rather the result of careful selection and training.

Time spent in selection and training is more than reclaimed in increased production, higher morale, and reduced turnover. An example from a shipyard shows what can be done. Terminations for women were running approximately 24 percent per month until a 5-day, 40-hour job introductory training program was set up under the Vocational Training Program for War Production Workers. Of the first 285 women who entered the shipyard after taking this training, only 4 left during the first month, a turnover of 1.4 percent. Five days of physical conditioning, of learning how to use tools, of climbing scaffolding, of talking shipyard terms, of learning about the crafts and trying out their own abilities enabled these women and the shipyard to decide where and how they could be used best in building ships. With such evidence at hand the War Manpower Commission has recommended that "Public training agencies as well as private training officials should recognize the necessity for supplying

complete and well-organized training to women as a substitute for job experience which most of the women to be hired will lack."

What kind of training do they need? How much? How shall it be given? The answers depend upon a number of variables: the jobs to be done, the number of women needed to do them, the qualifications of the women available, the facilities for training, the production schedule. In varying amounts, most of the women employed will need training in orientation, job skills, safety and health. How these three types of training are combined and related to each other in time and in content depends again upon the variables. In planning the proper combination, it is important to remember that what any worker must do and what he must know on a given job does not vary with sex. But alterations in or additions to the total training program of an installation must be made if the initial knowledge and skills possessed by those hired to do a job differ from those normally available. At present, the necessity of using women on unfamiliar jobs on the one hand and of hiring inexperienced help on the other makes such adaptations necessary in many installations.

Since the differences between men and women employees are greatest in the preassignment period, this is the stage at which training is most effective in reducing women's occupational handicaps. It is also the time when totally unqualified women not screened out in selection can be most easily eliminated. But if the work or the facilities of the installation make it necessary to postpone training until the women are placed on the job, in-service or on-the-job training will inherit these special tasks. Once these tasks have been definitely cared for, either before or after employment, there should be less and less need for any differentiation in the training of men and women. What are these possible handicaps and how can training eliminate or reduce them?

Physical adapting and conditioning.

Women average about half the muscular strength of men, according to the Women's Bureau, and about 5 inches less in height. As a group, they have smaller fingers, hands, and feet. These are averages and a particular woman may be stronger, taller, and bigger than a particular man. But workbenches, machines, tools, trucks, and other equipment used for the most part by men are designed for the average male operator. During a training period, women can learn to make the adaptations in their use of such equipment that will make the work easier and safer for them. Adjusting the height of a stool or moving a tool box within easier reach, for example, may reduce the strain of the work for a woman, just as placing a pillow of the right size makes it easier for her to drive her husband's car if the seat itself is not adjustable. Of course, the mechanical equipment itself should be adjusted wherever possible to make the job safer or less strenuous.

Women can also become physically conditioned to the job gradually and without the pressures of production, if they are given training beforehand. A woman may quit her job during the first week or two because her feet hurt from constant standing or because her back aches. But if she is given instruction in work positions and becomes used to them before being placed on the job, she may become a steady worker.

Becoming used to work clothing.

Being clothes-conscious, women need a chance to become used to working in clothing suitable for the job. Work outfits are quite different from normal wear and may seem unnecessary and cumbersome to some women until they learn why they are required and become unconscious of them through use. High-heeled shoes and flaring skirts usually must be abandoned. Where static creates a hazard, silk or rayon may not be worn. Jewelry is taboo, and long, loosely arranged hair must be controlled and covered where machinery is in motion. Although a safe costume may also be attractive, women, long accustomed to emphasize the attractiveness of their clothing, must be retrained to prefer safety to appearance. This adjustment in values and in habits does not require much time but it is too important to be ignored. During training, the instructor can emphasize the importance of clothing in protecting one's self and one's fellow-workers and the trainee can learn to work comfortably in work garb.

Bridging gaps in work background.

Preassignment training can help women to bridge gaps in their background which may handicap them on the job. The size of the gap varies with the nature and the amount of their work experience and the jobs they are expected to perform. For women who have never worked before, the gap is wide; for those who have worked on related jobs, it may be very narrow. It represents the knowledge or skill which those normally available for the job are likely to have because of previous work or training, and which the average woman available for work today lacks. For example, most women, expecially those who have recently entered the labor market, when compared with men, are:

1. Less familiar with industrial jobs and lacking in the experience that enables them to choose training or employment suited to their interests and abilities.
2. Less used to the excessive noise, grease, dirt, dust, and fumes that accompany many job operations.
3. Less familiar with tools, machines, and other mechanical equipment.
4. Less familiar with job terms and language.
5. Less confident of their skill and their judgment when deviations from the routine occur.
6. Less used to treatment in which personal consideration is ignored, such as bruskness, tactlessness, and shouting, and more sensitive to personal relationships on the job.
7. More likely to be placed "on the spot" because of real or anticipated prejudice on the part of male supervisors or workers.
8. Less used to being on their own in unfamiliar situations.
9. Less used to working continuously at a given task for long periods.
10. Less used to a superimposed routine planned by others.

All these liabilities are not likely to occur together in a single work situation. Nor is a particular woman, even one without work experience, likely to possess all of them. Moreover, many compensating assets, such as fine finger dexterity, thoroughness, conscientiousness, and desire to learn, have been reported by foremen. But where any handicaps exist, they may be overcome or reduced through training.

A helper sent for a chisel may bring a wrench, unless she has received simple instructions in the names and differences of common tools. The woman to whom "blueprint" calls to mind blue dress goods needs training in these and other terms if she is going to machine parts. The oil and water that prolong the life of her machine tool, or the din of pounding on sheet metal, may annoy or distract a woman to the point of quitting. After a week or two of training, however, these things cease to bother her and fade into the background, leaving the foreground of her attention to the essential duties of her job.

When a number of its women employees resigned because of a sudden shift in the operations they were performing in preparing and packing shells, an arsenal found that more careful preparation for assignment was needed. Lacking long work experience, the women did not understand the situation and had little confidence in their ability to learn to do the new work.

Lack of individual consideration ceases to be taken personally by a woman who has seen the same treatment accorded men and women in a training situation. Competition with other learners like herself prior to competition with experienced workers builds up her confidence.

A preassignment training period also provides a chance to ask questions and to learn when a question is necessary. Spoiled parts and accidents on the job will be reduced and the time of leadmen and foremen saved if this type of judgment is acquired before job assignment. Otherwise the pressure of production work may deter one green worker from asking necessary questions while it scares another into asking too many.

Making adjustments at home.

Whether married or unmarried, most women have more home duties than have men. These tend to increase fatigue, absenteeism, and turnover unless the tasks are simplified, divided with other members of the family, or taken care of by hired help. A preassignment training period provides time for adjusting and testing home schedules before starting on production work. Mrs. Jones may think that her arrangements for 12-year-old Johnnie to do her marketing and for the girl next door to take care of her cleaning and personal laundry are foolproof. But it takes time to train Johnnie in the use of ration points; it takes time to train the girl next door to do her tasks regularly and well. If, during this period of her responsibility for training others, Mrs. Jones herself is not tired out by work begun without training, she is more likely to have her job and her home running smoothly and to find she can care for both. She will be absent from the job less often and will be less fatigued by her dual responsibilities. During this period, she may also obtain help from the counselor in working out her initial problems and can decide with better judgment which shift is best for her.

Trying out trainees.

The advantages to trainees, of course, accrue indirectly to the installation in better performance from the start, in higher morale, and in reduced turnover. [2] Such training also enables an installation to eliminate poorly qualified women before they are placed on a job where they may not only waste materials and damage equipment but create a hazard for other employees and lower their morale. Because of the pressures of the labor market and the difficulty of measuring their qualifications quickly, many women have been placed on jobs where they not only have produced little, but have hindered the production of others and have deterred more capable women from working with them.

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2 "In a study of absenteeism and turnover, we have found that there is a definite correlation between the length of training prior to employment and the stability of the employment of the workers." p.25. Training Womanpower. War Manpower Commission, Bureau of Training, Washington, D. C., October, 1943.

"Data resulting from a survey conducted by the U. S. Office of Education indicate that labor turnover among persons who have received training in public vocational schools is far less than among industrial workers who have had no prejob training." p.6. Training Women War Production Workers. The Work of the Public Vocational Schools. By Louise Moore. Vocational Training for War Production Workers, U. S. Office of Education, Federal Security Agency, Washington 25, D. C., August, 1943.

A training period is an effective means of eliminating such women before they are assigned to jobs.

Illustration from a quartermaster Depot.

A 24-hour preassignment training program arranged for one of the quartermaster depots illustrates the type of instruction which meets the special training needs of women. Prepared at the request of the depot's civilian director of training and operated under the Vocational Training Program for War Production Workers, the course includes orientation. job skills, and safety training. It opens with a discussion of the purpose of the training and with information on military organization and the rules and regulations governing the jobs for which women are preparing. It closes with details about pay roll and employment procedures, which are further explained in a handbook distributed to them. Between these orientation features of the course trainees are taught typical operations performed in a warehouse or in a reclamation depot by such workers as: checkers, inspectors, packing clerks, selectors, lift truck and tractor drivers, toolroom workers, sorters, menders, and power machine operators and specialists. They learn how to use a hammer, a screw driver, and other hand tools. They are given practice as well as safety instruction in lifting and carrying, in loading, in stacking, and in handling hoists. Although it may be impossible to prove what these same women would have accomplished without such instruction, it is safe to predict that the time spent in training them will be more than made up by the depot in terms of fewer work-hours lost, fewer accidents, and higher per capita production.

TYPES OF TRAINING NEEDED AND ILLUSTRATIONS FROM THE FIELD

In training men or women to become more productive on the job, orientation, job skill, and safety instruction are usually required. As ingredients in an actual training situation, they may be so combined in a course or in on-the-job training that they lose their identities in the total task. Separate or combined, they are needed in some degree by most of the women now being hired.

Orientation.

The amount of orientation training needed varies with the women employed and the strangeness of the work situation so far as they are concerned. Much information about the new situation can be covered in a group orientation program. The particular needs of the individuals, on the other hand, may be served through individual counseling. Close cooperation between the counselor and the training officer (or between those bearing other titles who are responsible for these functions) will enable them to plan an orientation program that avoids both duplication and omissions. Specialists in other fields such as safety, production, and health may be called in to help with technical topics.

Regardless of the form in which she receives it, the new woman "hire" needs information on:

1. The rules and regulations affecting her on the job: Federal and State legislation; Civil Service regulations; installation rules with regard to hours, clothing, badges, pay, and similar items.
2. The place in which she works and the location and use of facilities available to her, such as food service, rest rooms, medical care, transportation, information, and counseling.
3. Her relationships to others, such as her line of authority and relationship to others in her group, channels for suggestions, complaints, and information.
4. Her possible contribution as a worker in her unit and the relationship of that unit to the total work of the War Department and the prosecution of the war.

Seven of the service commands reported women enrolled in general orientation training programs in December, 1943.

An Orientation program from a Service Command.

A general orientation program prepared by one of the service commands as a guide to its installations in training new employees outlines 5 steps. Step 1, requiring approximately 30 minutes, is handled by the Employee Relations Section which administers the oath of office, makes the employee feel welcome, and supplies information on:

1. Cloak and rest room facilities.
2. Eating facilities, lunch periods, drinking fountains.

3. Transportation.
4. Wages, pay day, date of first pay check.
5. Facilities for cashing checks.
6. Hours of work, time recording system.
7. Notification of absence.
8. Badges, passes, packages.
9. Suggestion system - safety; reporting accidents immediately.

The new employee, in Step 2, is then taken to her job location and introduced to her immediate supervisor, the officer in charge, and to fellow workers where that is possible. Following Job Instructor Training (J. I. T.) methods she is given instruction in the duties of her job and she practices them until the end of her first week of employment. Then a full day is spent on Step 3, a primary training program conducted as an informal conference. After members of the group become acquainted, they discuss:

1. The purpose of the conference.
2. Their past work experience.
3. The establishment, organization, composition, wartime and peacetime functions of the War Department.
4. The location and organization of the service command.
5. The organization of the employees' branch, their lines of authority, and the importance of their tasks.
6. Their responsibilities to their jobs.
7. Rules and regulations governing War Department and Federal employees.
8. General employee information on such subjects as hours, tardiness, personal mail, postage-free envelopes, fire hazards, care of property.
9. Military insignia, abbreviations, and mode of address for various ranks.

Since most of the new employees in this service command are office workers, the conference ends with a discussion of telephone technique, followed by a 10-minute demonstration and a 40-minute practice period in which problem sheets are used.

Step 4, for clerical employees only, covers military correspondence; preparation of military and nonmilitary letters; indorsements; inclosures; radiograms, telegrams, and cablegrams; immediate action letters and message form communication; office memo slips; abbreviations.

Further training on the job by her immediate supervisor, using J. I. T. methods, concludes Step 5 in the job orientation of the individual worker.

Job Skills.

Besides general orientation to their new work situation, training in specific job skills is needed by many women employees. The variety of job skills being taught in the Army Service Forces is indicated in the Appendix, in Table I which shows the types of training reported for one month. By

major types of training, women trainees during December, 1943, were distributed as follows:

Clerical and related	10,436	36.7%
Mechanical, maintenance, and plant	5,560	19.5%
Orientation and morale	4,293	15.0%
Supervisory, administrative, and personnel	3,532	12.4%
Safety, security, and health	2,246	7.9%
Inspection	1,370	4.8%
Technical, scientific, miscellaneous professional and semiprofessional	1,047	3.7%
Total	28,484	100.0%

Under mechanical, maintenance, and plant training are listed such courses as: instrument repair, auto mechanics, lift truck operation, heat treating, and shoe repair. Obviously the average woman does not bring to jobs in these areas a knowledge of terms, tools, and equipment comparable to that brought by the average man. She is likely, therefore, to need accompanying or preliminary training in:

> Handling tools, materials, and equipment.
> The special vocabulary used on the job.
> Health and safety measures that make the job safer, including the wearing of safety clothing and the use of protective devices.

Although what she must know and what she must ultimately do on the job as shown by the job breakdown represent the same minimum knowledge and skills required of any worker who does that particular job, she may need more time to acquire them. She may also need to brush up on related work in such subjects as mathematics or science.

Training films and film strips [3] are especially helpful in supplying missing background, but to be effective they should be run slowly and with ample explanation. Samples, blackboard sketches, charts, demonstrations, lists of job terms and definitions, and observation in the shop are needed to supplement lecture and discussion methods. The simplest technical term used in training for the first time should be checked with women trainees to make sure they understand its meaning. Frequent opportunity should be given for questions and for practice work following lectures and demonstrations. Especially in the beginning the alternation between classroom or group instruction and shop work is desirable, although gradually the shop phases of job skill training should become full-time as on the job. Provision for progress at different speeds is especially important since wide variations in aptitudes are likely to be revealed in the course of training.

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3 For a list of visual aids for use in training, see Selected Readings, No. 6, page 17.

Illustration from a machine shop.

A 4-week course operated in a vocational school to train women as machine shop helpers for one of the service commands illustrates the type of preliminary training that aids women without mechanical experience to learn mechanical operations more readily. The five units of the 192-hour course provided for:

Shop orientation	4 hours
Trade knowledge	20 hours
Plan reading	24 hours
General shop work	96 hours
Machine tool operating	48 hours

Shop orientation covered building and shop hazards, the use of goggles, cleanliness and skin protections, and shop ethics. During training, blue coveralls, safety hats or snoods, and low-heeled or safety shoes were worn. In the unit on trade knowledge, trainees were taught the symbols of metal alloys as used in Army drawings and the differences between metals and nonmetals, between ferrous and nonferrous metals. They learned electrical measurements and the metric system; the use of steel rules, calipers, micrometers, verniers, gages, and assembly tools, the use of protectives and lubricants. They were taught, in unit 3, to read blue prints and to do assembly work from drawings. Then they began their general shop training covering: filing, hacksawing, polishing, using an electric hand drill, scraping, measuring, dismounting, assembling, and tool-crib work. Finally, in the last unit, they learned to do simple work on lathes, to use the power saw and the sensitive drill. For those who completed this preparation, entrance into a machine shop with one or more fellow trainees was a natural step instead of a step into the unknown. Foremen receiving these women into their shops found them workers-in-process rather than the unworked raw material from which producers would have to be painfully forged.

Selection for job skills training.

Preoccupation with the quantity rather than with the quality of workers is inevitable in the emergencies of wartime hiring. But the expenditure of time and money in the attempt to develop certain job skills in women who lack the basic qualifications for developing such skills may be avoided. The value of a preassignment training period as a try-out for further training as well as for job assignment has already been indicated. Before extensive training in job skills is given, women should be reinterviewed or rechecked against the minimum qualifications for success in the training program. In addition to the usual items of information obtained at the time of employment, the following should be checked before job skills training is undertaken:

1. Status of health, especially the existence of pregnancy or any physical limitation which would prove a special handicap in the specific job for which training is given, e.g., poor vision, partial deafness, short arms, etc.
2. Evidence of ability to learn, as indicated by previous educational record or an intelligence test.

3. Evidence of interest and ability in school subjects that have a direct or indirect relation to the work to be learned. For example, other things being equal, a woman who liked mathematics and physics in high school is more likely to excel in machine shop work than one who disliked such subjects.
4. Presence of special abilities that may be significant in the training to be undertaken, such as finger dexterity, perception of space relationships, foot-eye coordination. Where qualified persons expert in the field of aptitude testing are available (either at the installation or through the U. S. Employment Service) the presence of significant aptitudes may be tested. In the absence of these facilities, past experience in activities which indicate the presence of related skills must be relied upon. Many household and other skills may be related to industrial skills, e.g., as dress patternmaking is to the making of templates.
5. Evidence of ability to complete training, as indicated by habits of follow-through and stability in former activities and relationships. Skillful interviewing will uncover clues along these lines.

In the long run, lowered loss of trainees and better performance will justify the delay involved in careful selection. Expecially is this true where the training program is long, costly, or difficult to arrange.

Illustration from the Signal Corps.

Caution, for example, is exercised by the Signal Corps in its final selection of women for a 6-month college level course designed to prepare them for service as engineering aides in aircraft radio. Candidates who have met the initial requirements as to age, education, and technical experience or training are interviewed by representatives of the laboratory for which the training is conducted to check their "interest, sincerity of purpose, and suitability in the training program and future engineering activities..." Tests measuring their ability to learn and their mechanical aptitude and reasoning are administered by specialists from the laboratory in cooperation with the U. S. Civil Service Commission. Experts in the Adjutant General's Office chose the tests to be used and determined their critical scores with respect to the training. The Signal Corps Inspection Agency uses similarly chosen aptitude tests in selecting from among those already employed the women best qualified to pursue further technical training.

Health and Safety.

The phrase "Women without industrial training" appears on the Ordnance Explosives Safety Training Sheet of safety problems confronting plant supervisors. Safety instruction is particularly important for such workers, who are as unfamiliar with the hazards of the job as they are with its operations. The particular precautions that have to do with the specific job should be given them as part of their job skill training. As taught in the Job Instructor Training and the Job Safety Training programs, each job should be analyzed for safety points. If women are to be trained, the job should be reexamined for special safety points that arise out of the physical differences noted earlier. These special safety points as well as those established for men, should be included in job instruction given to women.

The general safety and health hazards that are a part of the total work environment rather than hazards peculiar to the specific job may be taught separately or as a part of the general orientation program. In any case, special hazards arising out of the physical or clothing differences of women workers should be emphasized. On the whole, women are reported to experience fewer serious injuries but more minor ones on the job than are men workers. In instructing women, minor injuries and safety practices at work may be effectively related to those with which they are familiar, such as minor household injuries and safe practices in the home. Since fatigue is conducive to accidents and illness and since new women workers are prone to fatigue, emphasis on physical fitness and on good food and rest habits is important. In one of the service commands, a series of evening lectures on health and nutrition has been arranged for employees who are interested enough to spend some of their limited leisure time in hearing these subjects discussed by specialists. Special safety handbooks illustrated with vivid cartoons have been prepared for women workers in some of the depots and arsenals. Besides serving as ready references, such handbooks are useful as discussion guides in classes and conferences where safety instruction is given. In addition to those receiving safety instruction included in job skills training and orientation, 2,246 women were enrolled in special courses in health and safety in the Army Service Forces in the month of December, 1943. The location and types of courses are shown in Table I, page 20.

Supervisory and administrative training.

Twelve percent of all Army Service Forces female trainees were enrolled in supervisory or administrative courses in the month of December, 1943. The types and location of the courses are shown in Table I. No differentiation because of the sex of trainees is involved in supervisory training. A 3-day training conference conducted for women supervisors in one of the Chemical Warfare procurement districts, for example, covered the usual topics of interest to all supervisors:

Purpose of the conference
JIT demonstrations
Conference procedure
Analysis of supervisor's job
Characteristics of a good supervisor
Staff organization of the CWS Procurement District
Correspondence
Reports and orders
Cooperation
Individual differences
Labor turnover costs
Giving orders
Discipline
Governmental policies
Rating workers
Self-evaluation and improvement
Leadership and self-improvement

Some male foremen and supervisors, whose prior experience has been confined to the supervision of men workers and who are now or will be supervising women, may need instruction in methods of introducing women into the shop and in supervising them. The experience of having women in the shop will be as new to the foremen as the shop is to the women; both can profit from preparation. Discussion with foremen who have already successfully introduced women into their shops and brief units in foremen training courses will meet this need. One of the six 1½-hour sessions of the Quartermaster Corps Course in Wartime Supervision, for example, is devoted to the treatment of new groups of workers. The preparation of male employees for the initial introduction of new women workers as well as provisions for inducting women on the job are discussed.

RESOURCES IN ARRANGING TRAINING TO MEET THE SPECIAL NEED

Besides the training specialists attached to the Office of the Secretary of War, the Headquarters of the Army Service Forces, the technical services and the service commands, many additional resources are available to Army Service Forces installations in utilizing training to solve the special problems here discussed.

Instructions for utilizing the Federally financed training facilities of the Vocational Training Program for War Production Workers (VTWPW) and of the Engineering, Science, and Management War Training Program (ESMWT) have already been described in ASF Civilian Personnel Memorandum No. 99, 18 December, 1943. Thousands of women have been trained under these programs.

In December, 1943, 30,965 women were enrolled in preemployment or supplementary courses offered under the VTWPW program which was established to "provide specific and intensive training below college level for definite payroll jobs to a group or combination of groups for the purpose of increasing their effectiveness in the war effort." Machine shop training ranked with ship welding and various types of aircraft manufacturing training as one of the first five courses in point of numbers of women enrolled in December, 1943. Radio and communications training was high among the preemployment courses in which women were enrolled. A list of the State directors of vocational training for war production workers and their addresses was included with CP Memorandum No. 99 so that inquiries regarding their facilities for assistance might be made directly to them.

In the "short courses of college level, designed to meet the shortages of engineers, chemists, physicists, and production supervisors in fields essential to the war effort" which are offered under ESMWT, 31,081 women were enrolled in December, 1943. The five courses under this program in which the proportion of women enrolled was highest (as indicated over a period of a year) are as follows:

Fundamentals of General Engineering
Engineering Drawing and Descriptive Geometry
Inspection and Testing (Mech. Eng.)
Surveying and Mapping
Accounting

In these courses, the proportion of women enrolled ranged from 39 percent of the total enrollment in Accounting to 43 percent in Fundamentals of General Engineering. The institutional and regional representatives of ESMWT and their addresses are given in CP Memorandum No. 99 so that direct contact can be made where the program contemplated is not national in scope.

Consultants for on-the-job and in-service training are available through the Apprentice Training Service of the War Manpower Commission. The Women's Bureau of the U. S. Department of Labor has long specialized in the use of women in specific industries and operations and has agents in the field who may be called upon for consultation. The U. S. Civil Service Commission and

the Occupational Analysis program of the War Manpower Commission also have facilities and information which ASF Headquarters can assist installations in using.

Local representatives of these agencies may be reached directly. Upon request through customary channels, the Civilian Training Branch of the Industrial Personnel Division of the Army Service Forces Headquarters can arrange for assistance from resources at the national level. Within the limitations of its staff, it can also supply information and arrange for the exchange of manuals, forms, and other materials successfully used in programs under which women are being trained.

Enough experience in utilizing training to overcome the special problems currently connected with the employment of women has been accumulated so that no installation needs to begin anew in attacking its particular problems in this area. The full use of existing information and facilities combined with the will to tackle the few but evident problems involved will enable the Army Service Forces to train the many women in its ranks. Only through training realistically planned can women reach their full capacity in producing the materials and services needed by their men in the areas of combat.

SELECTED READINGS WITH ANNOTATIONS

1. Federal Security Agency, U. S. Office of Education, Vocational Training for War Production Workers. An experiment: Training women to take jobs and stick to them. Washington, D. C., January, 1944, 2 p. mimeo. VE-ND. Misc. 3710.

Describes a 5-day Job Introduction Training Course for women shipyard workers.

2. _____. Characteristics of women as workers. Washington, D. C., December 1, 1942. 2 p. mimeo. VE-ND. Misc. 3592.

Briefly discusses the assets of women as workers; differences between men and women workers and differences in training; importance of the instructor's attitude; and sources of assistance in matters pertaining to women workers.

3. _____. Occupations for girls and women in wartime; selected references. Washington, D. C., October, 1943. 17 p. mimeo. VE-ND. Misc. 3688.

Annotated bibliography including references useful for background in training women.

4. _____. Orientation of women trainees in war production classes. Washington, D. C., January 28, 1943. 2 p. mimeo. VE-ND. Misc. 3608.

A checklist of orientation material recommended for related instruction of women trainees in war production classes.

5. _____. Training women war production workers. The work of the public vocational schools. By Louise Moore. Washington, D. C., August, 1943. 8 p. mimeo. VE-ND. Misc. 3674.

Describes history of training women war production workers, fields of training, problems, and trends.

6. _____. Visual aids. A partial list of references. Washington, D. C., October, 1943. 109 p. mimeo. VE-ND. Misc. 3483 Ref. (Revision 2)

Annotated listing of movie films and film strips useful in training including a special list on women's training and work in war production as well as lists useful in training for machine shop, blue print reading, welding, radio, sheet metal, electrical and other occupational areas.

7. _____. Washing and toilet facilities for women trainees. Washington, D. C., April 30, 1943. 2 p. mimeo. VE-ND. Misc. 3643.

Desirable washing and toilet facilities for women trainees in war production training courses.

8. National Foreman's Institute, Inc. Supervising the woman war worker. Deep River, Conn., The Institute, 1942. 34 p.

Lists war industrial jobs women can do with 2-6 months' training and includes a discussion of policies with regard to the induction and training of women.

9. War Department, Headquarters, Army Service Forces. Guide to the immediate and maximum utilization of civilian womanpower. Washington, D. C., 10 November 1943. 21 p. ASF Civilian Personnel Information Bulletin No. 3.

Outlines steps in a successful program of preparing, recruiting, training, and retaining women employees under wartime conditions. Bibliography.

10. War Department, Office of the Secretary of War. You're going to employ women. Washington, D. C., 1943. 12 p. illus.

Brief suggestions for those hiring, training, supervising, and "working" women and for the use of a trained personnel woman.

11. War Manpower Commission. Policy on recruitment, training, and employment of women workers. Washington, D. C., 1942. 3 p. mimeo.

States national policies for the recruitment, referral, training, and employment of women in wartime.

12. War Manpower Commission, Bureau of Training. Training womanpower. Washington, D. C., October, 1943, 26 p.

Presents recommendations for an overall training program for women in 1943-44, followed by reports on the training of women under these war training programs: Vocational Training Program for War Production Work; Rural War Production Training; Training Within Industry; Apprentice - Training Service. Gives specific examples of human interest stories reported by the War Manpower Commission's 12 regional chiefs of training, and a general summary of trends in the training of women.

13. War Manpower Commission, Bureau of Training, Apprentice-Training Service. Training women for war work. By Mary Curran. Washington, D. C., 1943. 18 p. illus.

Outlines steps for discovering training needs, adapting plant facilities, preparing plant personnel and planning the training program for women. Discusses preparation, induction, on-the-job supplementary, and apprentice training and supplies information on women counselors. Describes training assistance available through the Apprentice-Training Service and lists the Service's regional representatives and their addresses.

14. Women's Bureau, U. S. Department of Labor. Absenteeism. Washington, D. C., March 11, 1943. 7 p. mimeo.

Outlines the causes of the absence among women workers and methods of reducing absenteeism.

15. _____. Safety clothing for women in industry. By Margaret T. Mettert. Washington, D. C., 1941. 11 p. Special Bulletin No. 3. illus.

Addressed directly to the woman worker in industry; this bulletin describes the clothing and equipment that reduce work hazards on the job and the special kinds of clothing required for protection against the particular hazards associated with certain jobs.

16. _____. Women's employment in artillery ammunition plants, 1942. By Martha J. Ziegler. Washington, D. C., 1942. 19 p.

Describes the processes and principal operations of the industry as well as the training of women for work in artillery ammunition plants and policies with regard to their qualifications, pay, hours, uniforms, and general working conditions.

17. _____. Women's wartime occupational hazards. Washington, D. C., March 11, 1943. 4 p. mimeo.

A comprehensive outline of the special accident and industrial health problems of women in wartime industrial employment.

Note.--The series of ten pamphlets issued by the Women's Bureau on standards recommended for women's working conditions, of which reference 15 is a sample, will be useful to training officials.

A P P E N D I X

TABLE I
TYPES OF TRAINING OF WOMEN CIVILIAN EMPLOYEES
Army Service Forces, December 1943
Headquarters Staff Divisions, Technical Services, and Service Commands

TYPES OF TRAINING	AGO	FISCAL	CWS	ENG	MEDICAL	ORD	QM	SIGNAL	TRANS	MDW	Service Commands								
											1	2	3	4	5	6	7	8	9
CLERICAL & RELATED																			
Address'gr.& graph. operator																	x		
Billing machine operator	x																		
Bookkeeping machine operator				x		x		x									x		
Cashier, assistant																	x		
Clerk, coding								x	x					x					
Calculating machine operator				x	x				x										
Dictating machine operator				x															
Duplicating machine operator (Mimeo., ditto, multilith)	x			x															
English; spelling	x					x			x								x		
Filing	x	x		x		x		x	x					x					
Filing, decimal	x	x		x	x		x		x										
I.B.M. machine operator																			
Card punch	x					x	x		x										
Tabulating machine operator	x	x				x	x												
Elect. acc't'g and other					x		x		x										
I.B.M. wiring; supervision	x	x			x	x	x		x										
Messenger				x	x		x												
Military correspondence	x	x	x	x	x	x	x	x	x		x		x			x	x	x	x
Office equip. conservation							x										x		
Receptionist																x			
Stenographer	x	x	x	x		x	x	x	x				x	x	x		x	x	x
Stenotype operator						x													
Telephone (PBX) operator				x					x			x	x	x	x	x	x		x
Telephone use																	x	x	
Teletype operator				x				x	x					x					
Tool keeper						x													
Typewriting	x	x		x		x	x	x	x				x		x		x	x	x
Other clerical	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x	x	x

Table I (continued)

TYPES OF TRAINING	AGO	FIS-CAL	CWS	ENG	MEDI-CAL	ORD	QM	SIG-NAL	TRANS	MDW	Service Commands 1	2	3	4	5	6	7	8	9
INSPECTION																			
Inspection, clothing, C & E															x				x
Inspection, other			x			x	x	x											
MECHANICAL, MAINTENANCE AND PLANT																			
Armament repair						x								x	x	x			
Assembler, sub assembler						x													
Auto mechanics				x		x								x	x	x			
Auto painter, helper														x					
Auto sheet metal, helper														x					
Auto upholster, helper														x					
Bench work						x													
Blue print operator				x		x													
Blue print reading								x	x										
Carpentry																			x
Checker, shop						x													
C. & E. repair						x				x							x		x
Communications trainee								x											
Crane operator						x								x					
Electrician's helper																x			
Elect. cord fabrication								x											
Elect. machine operator								x											
Electricity								x											
Elevator operator						x										x			
Engineman, locomotive						x													
Fireman, boiler																x			
Gage designer						x													
Heat treater						x													
Instrument repair					x			x			x		x	x	x				
Janitor					x														
Laborer, unskilled misc.				x	x	x													

Table I (continued)

TYPES OF TRAINING	AGO	FISCAL	CWS	ENG	MEDICAL	ORD	QM	SIGNAL	TRANS	MDW	Service Commands 1	2	3	4	5	6	7	8	9
(cont'd) MECHANICAL AND PLANT																			
Laundry operator						x			x	x		x			x	x	x		x
Leather worker, pkgs.						x								•					
Lens grinder						x													
Lens coating						x													
Machinist; machine adjuster						x													
Machine operator						x		x							x				
Maintenance trainee								x											
Mechanic learners			x																
Marine repair									x										
Motor vehicle operation				x	x	x	x	x											
Moveman						x													
Office appliance repair								x	x					x		x			
Oiler						x													
Photostat operator	x			x															
Plant operators; helpers			x			x													
Radio operator				x															
Radio technician							x	x						x			x		x
Repair, metal, misc.															x				
Sewing machine operator; seamstress						x	x		x						x				x
Shoe repair						x			x	x			x	x	x	x	x		x
Shop mathematics						x													
Soldering						x													
Transmission repair								x											
Waitress, kitchen worker																x			
Watch repair						x													

Table I (continued)

TYPES OF TRAINING	AGO	FIS-CAL	CWS	ENG	MEDI-CAL	ORD	QM	SIG-NAL	TRANS	MDW	Service Commands 1	2	3	4	5	6	7	8	9
ORIENTATION AND MORALE																			
Orientation, general	x	x		x	x	x	x	x				x	x		x	x	x	x	x
Orientation, special	x					x	x	x	x										
Welfare & morale																x			
Films:																			
Battle for Britain									x				x					x	
Battle of Russia									x			x							
Divide and Conquer									x										
Prelude to war													x						
Films unidentified					x	x	x	x	x										x
Industrial tours						x													
SAFETY, SECURITY & HEALTH																			
Firefighter							x												
First aid, standard				x		x	x		x			x			x				
First aid, adv. or inst.							x								x				
First aid, other						x	x												
Guard					x	x	x		x										
Home nursing						x			x							x			
Safeguarding military info.								x											x
Safety, 10 hrs.			x			x	x							x	x		x		
Safety, 20 hrs.							x	x						x	x				
Safety, health, misc.		x		x		x	x		x					x		x		x	

Table I (continued)

TYPES OF TRAINING	AGO	FIS-CAL	CWS	ENG	MEDI-CAL	ORD	QM	SIG-NAL	TRANS	MDW	Service Commands 1	2	3	4	5	6	7	8	9
SUPERVISORY, ADMINISTRATIVE AND PERSONNEL																			
Administration							x	x								x	x		
Classif.; job desc., pos. alloc.				x	x						x								
Employee relations				x		x		x			x					x			
Industrial psychology																		x	
J.I.T.	x	x			x	x	x	x	x					x		x	x	x	x
J.I.T. follow-through	x																		
J.M.T.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
J.M.T. follow-through		x																	
J.M.T. institute																x			
J.R.T.	x	x	x			x	x	x	x					x			x	x	x
J.R.T. institute																			x
Management; ind'l, personnel						x	x	x										x	
Supervisory	x			x	x	x	x	x	x				x			x		x	x
TECHNICAL, SCIENTIFIC AND MISC. PROF'L, AND SUB, PROF'L																			
Accounting						x							x					x	
Chemistry; metallurgy						x													
Computer				x		x													
Dental asst.														x	x		x	x	
Dietitian, app. or stud.					x							x		x				x	x
Drafting				x		x		x											
Drafting, topog.				x															
Elect. or radio tech. & theory								x											
Engineering aides				x		x		x											
Junior engineering				x															
Laboratory helper														x		x			x
Laboratory technician														x				x	x

Table I (continued)

TYPES OF TRAINING	AGO	FISCAL	CWS	ENG	MEDICAL	ORD	QM	SIGNAL	TRANS	MDW	Service Commands 1	2	3	4	5	6	7	8	9
(cont'd) TECHNICAL, AND MISC, Librarian; hostess, camp				x												x			x
Mathematics				x		x		x											
Nurse aide																	x		x
Occupational therapy											x			x	x				
Photography						x													
Physics; mechanics						x													
Physio-therapy aide					x							x		x		x		x	x
Production engineering						x		x											
Traffic management						x	x	x	x										
WAREHOUSE Checker					x	x	x	x							x				
Lift truck operator			x		x	x	x	x											
Mat'l; handling equip; unid.							x												
Packing				x	x	x	x	x											
Storekeeping					x		x												x
Tractor operator					x	x	x												
Warehouse laborer					x	x	x												

TABLE II

Civilian Women Receiving Training in the Army Service Forces
Distributed According to Type of Skill for which Training is Given
December, 1943

Components	Clerical	Administrative & Supervisory	Technical & Scientific	Inspectors	Mechanical	Security Safety & Health	Indoctrination & Orientation	Total
1. Staff Divisions	(1,384)	(378)	(0)	(0)	(0)	(0)	(811)	(2,573)
a. A. G. O.	621	196	0	0	0	0	222	1,039
b. Fiscal Director	763	182	0	0	0	0	589	1,534
2. Technical Services	(7,453)	(2,174)	(834)	(1,355)	(4,883)	(1,110)	(3,004)	(20,813)
a. C. W. S.	23	107	0	3	512	0	0	645
b. Engineers	732	36	83	0	43	27	56	977
c. Medical	164	147	348	0	140	2	85	886
d. Ordnance	1,055	892	112	229	3,220	489	666	6,663
e. Quartermaster	1,466	694	0	24	694	380	1,433	4,691
f. Signal	2,626	241	291	1,099	180	1	403	4,841
g. Transportation	1,387	57	0	0	94	211	361	2,110
3. Service Commands	(1,599)	(980)	(213)	(15)	(677)	(1,136)	(478)	(5,098)
a. First	77	29	5	0	0	2	0	113
b. Second	4	104	5	0	159	1	277	550
c. Third	170	43	0	0	11	0	20	244
d. Fourth	219	140	52	0	77	8	0	496
e. Fifth	90	22	4	14	113	35	34	312
f. Sixth	109	86	4	0	113	640	59	1,011
g. Seventh	334	168	15	0	157	34	13	721
h. Eighth	364	291	116	0	0	409	21	1,201
i. Ninth	232	93	12	1	16	7	54	415
j. M. D. W.	0	4	0	0	31	0	0	35
Total	10,436	3,532	1,047	1,370	5,560	2,246	4,293	28,484

24-80693ABCD-9,700

ADVANCE RELEASE

Miss Nienburg
W. M. Com.

ADVANCE RELEASE: For THURSDAY MORNING Papers, February 4, 1943.
CRR--WMC--2037

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION PM-4300

The Manpower Commission today released a "training chart" summarizing types of war-training courses available for boys, girls, men, and women, of various capabilities and backgrounds.

The chart deals only with training for war and food production, and does not concern itself with training in or for the United States armed forces and auxiliaries, employment in civil service, nursing, or the many important volunteer services.

The chart is planned to give training information both to those already working, but in less-essential industry, and to those who are not presently working but who anticipate taking war production jobs in the near future.

Although some types of training mentioned on the chart are for boys and girls as young as fourteen and still in school, it should be remembered, the War Manpower Commission stated, that State and Federal laws regulate the ages at which children may be employed, particularly in manufacturing, mining, and hazardous occupations. Training, of course, should not be undertaken for an occupation in which a person may not legally be employed. Information on this subject may be obtained from school authorities, the Children's Bureau of the U.S. Department of Labor, and from the United States Employment Service.

Most of the training courses suggested for children of 14 (and over) are at least two-year courses.

Those who are already doing essential work are cautioned not to assume hastily that they should change their jobs or train for new work in war plants. It is recalled that a group of steel workers not long ago had to be convinced that they were doing war work in the jobs at which they had been employed for fifteen and twenty years. They had considered quitting to go into an ordnance plant in the same area. The wage differential, in this case, was not a factor. The men simply wished to be sure that they were engaged in important war production.

For those who discover that they are working in a less-essential industry, consultation with the local office of the United States Employment Service is suggested in order to learn what types of workers are needed in the region where the workers live. For such transferring workers, the free pre-employment Vocational-Training-for-War Production-Workers courses in public vocational schools are suggested; as well as the short, tuition-free college-level courses in engineering, chemistry, physics, and production supervision---ESMWT courses (Engineering-Science-Management-War-Training)--for men or women who have had at least high school or equivalent education.

For school boys or girls of 14 to 17, regular vocational training in the public vocational school is indicated.

For those 16-24 years of age, out-of-school and unemployed, information is given regarding the War Production Training Projects operated by the National Youth Administration. On such projects, trainees earn wages and work 160 hours

per month, for an average training period of two months. Resident facilities are provided for trainees whose homes are beyond daily commuting distance of a project.

Boys and girls of 14 to 18, who are interested in helping out on the great task of food production, are told that they will be welcomed as members of the High School Victory Corps, and may receive emergency farm employment training. The training continues throughout the school year and when the boys and girls go onto the farms for practical experience, they will be receiving on-the-job training.

A school boy of 14 years or over who is planning to be a farmer is eligible for enrollment in high school courses in vocational agriculture--a two to four year course, which includes organized instruction in agriculture and training in farm mechanics, and supervised farming throughout the year.

Out-of-school boys and girls, 14 years of age or older, who have already entered upon or are preparing to enter upon the work of the farm, are eligible for enrollment in adult or part-time training in agriculture. The nearest high school or State Board for Vocational Education will have information regarding such courses which range from a minimum of ten meetings of not less than 90 minutes each to instruction throughout the year.

If a man or woman over 17 years of age, is out-of-school and is interested in preliminary mechanical training, in training for the production of agricultural commodities, or in training as a farm worker, he or she is eligible for enrollment in RWPT courses (Rural War Production Training). This instruction is designed to give preliminary mechanical training, to aid farmers in the repair, operation and construction of farm machinery and equipment, and in attaining the commodity goals designed by the Secretary of Agriculture and to develop the skills needed by farm workers. For direction to centers operating such RWPT courses, one applies to the nearest high school, or the State Board for Vocational Education.

Unskilled men and women, or boys and girls legally qualified to work are directed to the short term training in VTWPW courses at vocational schools. It is also noted that, in many instances, under the pressures of today, such workers may be trained on-the-job in a war industry. The local United States Employment Service office will be able to refer those who want to work to the plants which are seeking new employees. The local United States Employment Service office will also know where the free VTWPW courses are offered and whether the demand is for welders, sheet-metal workers, electroplaters, machine tool operators, metal lathe workers, or other types of workers.

A man or woman out of school, not over 25, and desirous of entering one of the skilled trades for which he or she shows an aptitude, may be eligible for regular apprenticeship training, receiving wages while learning. Apprenticeship usually runs 2 to 5 years, coupled with 144 hours per year of instruction in related subjects at public vocational schools. Men with deferred draft status or not yet called to military service, soldiers honorably discharged from service because of injuries, and women are among the eligibles for apprentice-training. Application for apprentice-training is made at the nearest United States Employment Service office, to industry, or to a labor union.

(See attached chart)

PM-4300

P R E P A R E

For Your Job in War Production

N O W

Millions of You Are Needed

Short FREE training fits you to do your part

EXCLUSIVE OF TRAINING IN U. S. ARMED FORCES AND AUXILIARIES, CIVIL SERVICE, NURSING, AND VOLUNTEER SERVICES.

IF YOU ARE	WHAT CAN YOU DO?	WHERE DO YOU APPLY:
ALREADY WORKING	Do NOT hastily assume that you should change your job or train for new work in a war plant. YOU MAY BE DOING IMPORTANT WAR WORK WHERE YOU ARE. On the other hand, you may be working in a less essential industry. FIND OUT.	TALK IT OVER WITH YOUR EMPLOYER OR THE LABOR-MANAGEMENT COMMITTEE IN YOUR PLACE OF WORK, OR CONSULT THE LOCAL OFFICE OF THE UNITED STATES EMPLOYMENT SERVICE.
EMPLOYED IN A LESS ESSENTIAL INDUSTRY	Scores of training courses are now given, without charge for tuition, in public vocational schools, colleges, and universities to prepare men and women for essential war jobs. Preemployment courses in public vocational schools (VTWFW courses) enable employed persons to extend their skills and knowledge in fields important to the war effort. Short, tuition-free college-level courses in engineering, chemistry, physics, and production supervision (FSTWT courses) are operated in approximately 1,000 towns and cities under the sponsorship of over 200 colleges and universities, for men or women who have had high school or equivalent education.	FIRST CONSULT LOCAL OFFICE OF U. S. EMPLOYMENT SERVICE TO LEARN WHAT TYPES OF WORKERS ARE NEEDED IN WAR INDUSTRIES IN YOUR LOCALITY. POINT YOUR TRAINING TOWARD AVAILABLE OPENINGS. U.S.E.S. WILL REFER YOU TO APPROPRIATE TRAINING AGENCIES IN THE AREA WHERE YOU LIVE. FOR INFORMATION CONCERNING COLLEGE-LEVEL TRAINING YOU MAY APPLY TO THE MAJOR COLLEGES AND UNIVERSITIES OF YOUR STATE.

X-9555

PM-4300

14-17 YEARS OF AGE (BOY OR GIRL) AND STILL IN SCHOOL	You may be eligible for full or part-time regular vocational training in the public school you attend. Or, if vocational training is not offered at your school, and if your teachers rate you as "employable after training," possibly you can transfer to or register at a public vocational school, where you can train for skilled work. Some courses require only a few weeks to complete, others take from two to four years to finish.	AT YOUR SCHOOL
16-24 YEARS OF AGE (INCLUSIVE) OUT OF SCHOOL AND UNEMPLOYED WOMAN, OR MAN DRAFT-DEFERRED OR STILL UNCALLED TO MILITARY SERVICE.	You may be eligible for work training in mechanical skills in War Production Training Projects operated by the National Youth Administration. Trainees earn wages and work 160 hours a month, for an average training period of two months. Resident facilities are provided for trainees whose homes are beyond daily commuting distance of a project.	AT NEAREST NYA OFFICE OR LOCAL OFFICE OF U. S. EMPLOYMENT SERVICE.
IN SCHOOL (BOY OR GIRL) 14 TO 18 YEARS OF AGE AND INTERESTED IN EMERGENCY EMPLOYMENT IN WAR TIME FOOD PRODUCTION.	You may become a member of the High School Victory Corps and are eligible for enrollment in training to engage in emergency farm employment. This training will extend throughout the school year and on-the job training will be given after entering employment on farms.	APPLY TO YOUR HIGH SCHOOL PRINCIPAL OR SUPERINTENDENT.

X-9555

IN SCHOOL (BOY 14 YEARS OF AGE OR OLDER) AND HAVE ENTERED UPON OR ARE PLANNING TO ENTER UPON THE WORK OF THE FARM.	You are eligible for enrollment in high school courses in vocational agriculture. This training extends over two to four school years and includes organized instruction in agriculture and training in farm mechanics during the school year and supervised farming throughout the year.	APPLY TO YOUR HIGH SCHOOL PRINCIPAL OR SUPERINTENDENT OR TO THE STATE BOARD FOR VOCATIONAL EDUCATION FOR DIRECTION TO SCHOOLS OFFERING COURSES IN VOCATIONAL AGRICULTURE.
OUT-OF-SCHOOL BOY OR GIRL 14 YEARS OF AGE OR OLDER WHO HAS ENTERED UPON OR IS PREPARED TO ENTER UPON THE WORK OF THE FARM.	You are eligible for enrollment in adult or part-time training in agriculture. Adult and part-time courses are designed to meet the needs of persons who have entered upon or are planning to enter upon the work of the farm. The courses range from a minimum of 10 meetings of not less than 90 minutes each to instruction throughout the year.	APPLY TO YOUR NEAREST HIGH SCHOOL OR TO YOUR STATE BOARD FOR VOCATIONAL EDUCATION FOR DIRECTION TO SCHOOLS OPERATING DEPARTMENTS OF VOCATIONAL AGRICULTURE.
OUT-OF-SCHOOL MAN OR WOMAN OVER 17 YEARS OF AGE INTERESTED IN PRELIMINARY MECHANICAL TRAINING, IN TRAINING FOR THE PRODUCTION OF AGRICULTURAL COMMODITIES, OR IN TRAINING AS A FARM WORKER.	You are eligible for enrollment in Rural War Production Training Courses. This instruction is designed to give preliminary mechanical training, to aid farmers in the repair, operation and construction of farm machinery and equipment, and in attaining the commodity goals designed by the Secretary of Agriculture and to develop the skills needed by farm workers.	APPLY TO YOUR NEAREST HIGH SCHOOL, YOUR STATE BOARD FOR VOCATIONAL EDUCATION OR YOUR LOCAL OFFICE OF THE U.S.E.S. FOR DIRECTION TO CENTERS OPERATING SUCH RURAL WAR PRODUCTION TRAINING COURSES.

UNSKILLED BUT ABLE AND WILLING TO WORK IN WAR INDUSTRY (MAN OR WOMAN; BOY OR GIRL LEGALLY QUALIFIED TO WORK)	Register for short term training in VTWPW courses at vocational school. Or, in some instances, you may be trained on-the job in war industry.	FIRST CONSULT NEAREST U.S. EMPLOYMENT SEVICE OFFICE TO LEARN NEEDS IN YOUR LOCALITY. THEN, ACTING ON ADVICE OF U.S.E.S. EITHER REGISTER FOR PRE-EMPLOYMENT TRAINING OR AWAIT REFERRAL BY U.S.E.S. LOCAL OFFICE
OUT OF SCHOOL, NOT OVER 25 DESIROUS OF ENTERING ONE OF THE SKILLED TRADES FOR WHICH YOU SHOW AN APTITUDE. (WOMAN, OR MAN WITH DEFERRED DRAFT STATUS OR NOT YET CALLED TO MILITARY SERVICE)	You may be eligible for regular apprenticeship training, receiving wages as you learn. Apprenticeship usually runs 2-5 years, coupled with 144 hours per year of instruction in related subjects at public vocational schools.	AT NEAREST U. S. EMPLOYMENT SERVICE OFFICE, TO INDUSTRY OR LABOR UNIONS.
HIGHLY SKILLED SCIENTIFIC OR PROFESSIONAL MAN OR WOMAN (WHETHER OR NOT YOU ARE NOW WORKING)	Register your skills with the National Roster of Scientific and Specialized Personnel, War Manpower Commission, Washington, D. C.,--so that your country may call upon you in case of need. If not employed, or if employed in less essential industry, make those facts known.	NATIONAL ROSTER OF SCIENTIFIC AND SPECIALIZED PERSONNEL, WASHINGTON, D. C.
COLLEGE GRADUATE IN SCIENTIFIC OR PROFESSIONAL FIELD	Register your skills with the National Roster of Scientific and Specialized Personnel, War Manpower Commission, Washington, D. C.--so that your country may call upon you in case of need. Close cooperation is maintained with the U.S. Employment Service field offices, and war industries check with U. S. Employment Service to fill vacancies for scientific or professional personnel.	NATIONAL ROSTER OF SCIENTIFIC AND SPECIALIZED PERSONNEL, WAR MANPOWER COMMISSION, WASHINGTON, D. C.

HIGH SCHOOL GRADUATE, FORMER COLLEGE STUDENT, OR MAN OR WOMAN WITH RESPONSIBLE INDUSTRIAL EXPERIENCE. (EMPLOYED OR UNEMPLOYED.)

You may receive training, without charge for tuition, in short, intensive courses of college grade (ESMWT courses conducted by more than 200 colleges and universities as both residence and extension courses in over 1,000 towns and cities, to prepare yourself for professional or technical employment in war industries, or for more responsible duties if already employed in a war industry.

AT MAJOR COLLEGES AND UNIVERSITIES THROUGHOUT THE NATION. OR WRITE FOR GENERAL INFORMATION AND A LIST OF PARTICIPATING INSTITUTIONS, TO THE DIRECTOR OF ESMWT, U. S. OFFICE OF EDUCATION, WASHINGTON, D. C.

U. S. E. S. - United States Employment Service

VTWPW courses - Vocational Training for War Production Workers

ESMWT courses - Engineering, Science, Management War Training

NYA - National Youth Administration

Orr: WMC, 2037

ADVANCE RELEASE

Miss Nienburg
W. M. Comm

ADVANCE RELEASE: For Sunday Papers, February 7, 1943

PM-4303

OFFICE OF WAR INFORMATION
War Manpower Commission

Safeguards for the health, welfare, and education of American youth whose services are being demanded by the war program were today advanced by a statement of policy approved by the War Manpower Commission and signed by Paul V. McNutt, Chairman.

Members of the War Manpower Commission, in addition to the Chairman and Fowler V. Harper, Deputy Chairman, are: Arthur Altmeyer, Chairman of the Social Security Board, representing the Federal Security Agency; Ralph Bard, Assistant Secretary of the Navy; Robert P. Patterson, Undersecretary of War; Arthur S. Flemming, Commissioner, Civil Service Commission; Otto S. Beyer, representing War Shipping Administration and Office of Defense Transportation; John S. Blandford, Jr., Administrator, National Housing Agency; Claude R. Wickard, Secretary of Agriculture; Frances Perkins, Secretary of Labor; and Donald M. Nelson, Chairman, War Production Board.

"It is essential," the statement reads, "that young people have the fullest possible opportunity consistent with the war effort to complete their education. Those with special aptitudes and capacity for further training should continue their education in order to develop their maximum abilities applicable to war and post-war needs."

While it is recognized that many young persons under 18 will be needed to replace men and women who have left their peacetime occupations to join the armed services or take war-production jobs, entrance of young persons into the Nation's labor force must be hedged with careful provisions which consider the Nation's future, the Commission emphasizes. The statement points out:

"In most cases youth under 18 can best contribute to the war program by continuing in school and, when their services are required, accepting vacation and part-time employment... In any case, all forms of employment of such youth, including employment in agriculture, must be specially safeguarded. Their services must be used in such ways as to bring about their maximum contribution to manpower needs consistent with the protection of their health and welfare and the fullest utilization and development of their aptitudes, abilities, and interests. The achievement of these objectives requires the active cooperation of young people, their parents, Government agencies, educational authorities, management, and labor."

The basic National policy with respect to youth was stated as follows:

1. School attendance laws and child-labor standards embodied in State and Federal laws should be preserved and enforced, and the minimum standards hereinafter listed not be construed to warrant any relaxation of these laws or lowering of the standards embodied in them:

2. No one under 14 years of age should be employed full-time or part-time as a part of the hired labor force:

3. Youth under 18 years of age may properly be employed only:

a. after the employer obtains proof of age in the form of employment or age certificates or, in case such certificates are not legally required, other reliable evidence;

b. in work suited to their age and strength, avoiding all occupations that are hazardous or detrimental to health or welfare;

c. where provision is made for adequate meal and rest periods or time, and facilities therefor, adequate sanitary facilities; and safeguards for health and safety;

d. for periods suited to their age and strength, and in no case for more than 8 hours a day or 6 consecutive days, except as deviations may be necessary where the worker is engaged in continuing farm work of a non-seasonal character and is domiciled at the place of employment, or except as temporary departures from the above standard under adequate safeguards, where permitted for youth aged 16 and 17 under existing Federal or State laws, rules or regulations, may be necessary to meet a special emergency:

e. during hours of day not detrimental to their health and welfare; and

f. at wages paid adult workers for similar job performance;

4. Youth aged 14 or 15 may properly be employed only when, in addition to the foregoing conditions:

a. qualified older workers are not available; and

b. the employment is not in manufacturing or mining occupations;

5. In-school youth may properly be employed only to the extent that the combined school and work activities involve no undue strain, and that combined school and work hours, at least for youth under 16, not exceed 8 per day;

6. In-school youth should not be employed during school hours unless the Area or Regional Manpower Director has determined that temporary needs of an emergency character cannot be met by full use of other available sources of labor, in which case school programs shall be adjusted under plans that:

a. provide for the educational programs of those who take employment;

b. avoid interference with the school attendance of those who do not take employment; and

c. avoid the closing of any school or grades therein, except to the extent that the hours, terms or curricula are readjusted to preclude the curtailment of educational opportunities;

7. When war-time emergency cooperative arrangements have been entered into with school authorities for the part-time employment of in-school youth

as a part of the school program, the employer should be responsible for certifying to the school authorities that such employment will be in conformity with State and Federal laws governing the employment of minors and with the standards contained in Sections 3 to 7 above, and the school authorities be responsible for permitting school children to take only those jobs that will contribute definitely to their educational welfare and useful work experience;

8. When it is necessary to transport young people to and from work, safe and adequate means of transportation should be provided, and the period of work and transportation should not exceed 10 hours a day;

9. Where youth under 18 years of age are recruited in groups for agricultural work requiring them to live away from home, prior to placement, assurances should be furnished by appropriate community or other agencies that suitable living conditions, sanitary facilities, health protection, supervision, and leisure-time activities will be provided; and in no case should youth aged 14 or 15 be recruited for work requiring them to live away from home except where such work is in connection with programs conducted by recognized youth-serving agencies that provide close supervision;

10. Any youth interested in work in another area should not leave his own area in search of work without first:

a. registering for employment at the nearest local office of the United States Employment Service or such other agency as may be designated by the War Manpower Commission:

b. presenting evidence of parental consent; and

c. being referred by such office to a specific job opening where he can be lawfully employed, and where there are suitable arrangements for housing.

WAR MANPOWER COMMISSION

Policy on Recruitment, Training and Employment of Women Workers

The increase in our armed forces and the expansion of the war production program necessitate the maximum utilization of our labor resources. The present number of gainfully employed workers, both men and women, is inadequate to fill even the immediate requirements of the war production program. In many areas the lack of adequate housing and transportation facilities compels full use of the local labor supply. These considerations require that substantially increased numbers of women be employed in gainful occupations in war production and essential civilian employment, especially in areas of labor scarcity. The recruitment and training of women workers must be greatly expanded and intensified. In carrying out this program for the utilization of women workers, normal family life should be preserved and maintained to the maximum extent consistent with all-out production. The active cooperation of Government agencies, educational institutions, management, labor, and women able to accept employment is essential.

To promote the rapid and orderly induction of women into the labor market and to insure their subsequent employment and training opportunities, the War Manpower Commission hereby declares as basic national policies for the recruitment, referral, training and employment of women that:

1. Recruitment and Referral of Women Workers

(a) Qualified women who are unemployed and who are registered in local offices of the United States Employment Service be referred to employment and training opportunities on a basis of equality with men, due regard being to their qualifications for the available work, to the physical requirements of the occupations, and to working conditions;

(b) Women without children under 14 years of age be actively recruited for employment and training, but this principle shall not be construed to mean that women who are responsible for the care of young children and who desire work are to be deprived of an opportunity for training or employment;

(c) Special efforts to secure the employment of women with young children be deferred until all other sources of local labor supply have been exhausted, in order that established family life will not be unnecessarily disrupted;

(d) In those areas in which industrial concentration and lack of housing, transportation, and other community facilities compels the fullest utilization of every labor resource in the locality, every effort be made to utilize fully, women qualified and able to contribute to war production or essential civilian employment before workers are recruited from outside the locality;

(over)

(e) Adequate facilities be provided for the care of the children of working mothers, which facilities should be developed as approved community projects and not under the auspices of individual employers or employer groups;

(f) Every effort be made to recruit and refer women, including older women, for employment or training on the basis of their qualifications for an occupation without discrimination because of race, national origin or creed.

II. Training of Women Workers

(a) Where pre-employment training is desirable and employment opportunities are or will be available, women be referred to war production pre-employment training courses conducted by public vocational schools on a basis of equality with men; that is, on the basis of their qualification for the occupation in which training is offered, due consideration being given to the physical requirements of the occupation;

(b) Women be admitted on a basis of equality with men to enrollment in the Engineering, Science, and Management War Training Program conducted by colleges, universities, and technical schools in cooperation with the United States Office of Education;

(c) Women workers now employed be encouraged to enroll in supplementary war training courses conducted by public vocational schools, in order that a greater number of women may prepare themselves for additional responsibilities and for upgrading within the plant;

(d) Women participate equally with men in plant training programs. Such programs should include adequate induction training, on-the-job training, upgrading, training for women foremen and supervisors, and technical training.

III. Employment of Women Workers

(a) Management and labor organizations remove all barriers to the employment of women in any occupation for which they are or can be fitted;

(b) Every method available be utilized to assure that women workers be completely accepted as a part of the Nation's manpower needed for all-out production;

(c) In order to provide a basis for efficient selection of women for training and job assignment and to increase the number of women employed, management immediately analyze all occupations within the plant from the unskilled to the technical levels; determine the types of work that women could do; take steps to prepare the plant for the maximum employment of women; consult with its supervisory staff and representatives of its employees' labor organizations in order to promote acceptance of women as co-workers and to help new women employees adjust to their working environment; and periodically review practices and policies and make such additional adjustments as are necessary to obtain full utilization of women;

(d) Wage rates, including the entrance rate, be determined for all workers on the basis of the work performed, irrespective of sex;

(e) The following basic principles whether or not incorporated in State laws and regulations be applied and preserved in order to promote maximum production efficiency and to safeguard the health and welfare of women workers;

(1) One day of rest in seven;

(2) An 8-hour shift and a maximum 48-hour week, except to the extent that temporary exemptions under adequate safeguards are necessary to meet emergencies;

(3) Adequate meal and rest periods or time, and proper facilities therefor; adequate medical care and other safeguards for health and safety;

(f) Every reasonable effort be made to adjust assignments to shifts of women with young children, in such manner as will cause the least disruption in their family life.

IV. Women Able to Accept Employment

(a) Upon advice from a representative of the War Manpower Commission that additional women workers are required in their locality because of existing or imminent labor shortages, all women able to accept employment register for employment or training with the nearest local office of the United States Employment Service;

(b) Women interested in work outside their locality not leave their own community in search of work or training in another community without first

(1) registering for employment at the nearest local office of the United States Employment Service; and

(2) securing advice from such office that such work or training is available.

OCT 19 1942

WAR MANPOWER COMMISSION
Apprentice and Training Service

War Manpower Comm
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APPRENTICE AND TRAINING SERVICE OF WAR MANPOWER COMMISSION
PROMOTES TRAINING OF WAR PRODUCTION WORKERS ON THE JOB

The Apprentice and Training Service is one of the operating agencies of the War Manpower Commission.

Until it was transferred to the War Manpower Commission by Executive Order in April, 1942, the Apprentice and Training Service was part of the U. S. Department of Labor, established by an Act of Congress several years ago to promote the training of apprentices according to standards of training recommended by the Federal Committee on Apprenticeship.

Though primarily established to promote apprenticeship, for the duration of the war the Service is assisting in handling other phases of labor training vital to the war effort.

To understand clearly the functions of training agencies operating under the supervision and direction of the War Manpower Commission, it must first be realized that the training of all workers falls into two major categories:

1. Training "on-the-job" of employed workers who contribute to production while they are increasing their skills;

2. Training "off the job" in class rooms and vocational education shops.

Currently, the particular functions of the Apprentice and Training Service is to render assistance to war plants in:

1. Establishing or improving arrangements for training apprentices in plants and shops where apprentice-trained craftsmen are indispensable;

2. Helping war establishments setup short term training programs geared directly into their production machinery. This task may involve setting up a system of upgrading which trains a worker at one production level for advancement to the next more difficult job, and for the re-training of workers shifted from one type of plant or production to another;

3. Assisting in clearing up seniority, wages, ratio, hours of work, and similar problems arising out of efforts to set up training programs which would meet the exigencies of war production;

4. In addition, the Service assists in obtaining interpretation of Federal and State labor laws, in rewriting training clauses of bargaining agreements, and performs other similar services.

These services are provided without cost to industries and other groups.

The field staff of the Apprentice and Training Service consists of more than 160 field men experienced in training apprentices and other workers under production conditions. These men operate out of some 70 field offices, setup into twelve regions, located at key points through the 43 states.

The activities and functions of the Service are coordinated with those of other War Manpower Commission agencies.

Statistics reveal that there are at present nearly 2,000 approved apprentice training programs in effect, an increase of almost 900 during the past twelve months. Some 1,100 of these programs are designed to fill the specific needs of single plants. The remainder cover the training of apprentices in one craft over a geographic area such as a city or county.

The work of formulating sound apprenticeship or shorter forms of training is greatly facilitated by standards of apprenticeship and "advancing workers" training recommended by the Federal Committee on Apprenticeship, a management-labor committee which has been advising the Federal Government on apprenticeship and in-plant training matters for a number of years.

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Miss Kleinberg
Manpower Comm.

Serial No. T-111

TRAINING WOMEN FOR WAR WORK

METHODS AND SUGGESTIONS FOR EXPEDITING THE JOB

War Manpower Commission
Bureau of Training
Apprentice-Training Service
Washington, D. C.

1943

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FOREWORD

One of the vital needs of industry today is the effective use of its womanpower. Wise training procedures are bringing many women war production workers to greater efficiency and encouraging them to continue in their jobs.

These suggested methods and procedures have been prepared by the Apprentice-Training Service. This agency of the Bureau of Training, under the direction of William F. Patterson, has been assisting many war plants to meet their manpower requirements through over-all training programs in which are coordinated all of the training services of the War Manpower Commission.

It is our belief that the outline presented here will be of material assistance to industries that already are employing women or are contemplating the introduction of women war workers to jobs which until recently were performed exclusively by men.

Philip Van Wyck, Acting Director
Bureau of Training
War Manpower Commission

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INTRODUCTION

To develop new recruits into efficient war production workers, the Apprentice-Training Service is assisting industry throughout the United States in setting up overall training systems. In an increasing proportion, the trainees under these systems are women employed for jobs which men have customarily performed.

The training methods suggested for inexperienced women workers do not differ from the recommended procedure for inexperienced male employees, except that additional practice and explanation is recommended to compensate for the lack of mechanical knowledge and industrial experience.

This manual of training procedures, compiled by Mrs. Mary Curran, Training Specialist, is based on her special studies of job training for women and on reports from Apprentice-Training Service field men on training practices which are being applied successfully by war production plants.

Grateful acknowledgment is made for cooperation in the preparation of this bulletin to the Training Within Industry Service of the Bureau of Training, the Division of Vocational Training for War Production Workers of the U. S. Office of Education, and the Women's Bureau of the U. S. Department of Labor.

Wm. F. Patterson, Director
Apprentice-Training Service

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TRAINING WOMEN FOR WAR WORK

A Basic Outline

The induction training program should be especially detailed and should be extended over a sufficient period of time to give the incoming workers a complete picture of the organization in which they are to work, their place in it, and the job they will be expected to do Because this part of the training program is so important in effectively introducing women to new work, special attention has been given to it in this bulletin. Women workers are inspired by the knowledge of the contribution they are making even though the jobs they perform may, in many instances, be very simple.

Plant personnel should be advised of the reasons for introducing women war workers and prepared to welcome and help to orient trainees. The woman counselor should be brought into the induction training program, so that the women will know from the beginning from whom they can secure the guidance most acutely needed in the first weeks of adjustment to new working conditions. Plant facilities should be adjusted according to the needs of women workers.

On-the-job training should be given by supervisors and instructors who are patient, and sympathetic to the idea of a woman doing the job. The job instructor will be more apt, through encouragement and guidance, to bring the individual trainee to an acceptable standard. Through unsympathetic treatment or poor teaching methods, he may be responsible for trainee turnover or poor workmanship. Patience and understanding of their work problems, as well as friendly work atmosphere, are even more important to women than to men workers.

Pre-employment training and supplementary training are given to provide new skills to women who lack industrial experience, and to improve the efficiency of those who already have skills. Both types of training can be offered when employers hire new applicants and refer them directly to these courses.

Planning for women workers through an analysis of the jobs which they can perform most effectively in the plant is an important preparatory step.

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DISCOVERING THE NEEDS

When considering manpower needs in terms of womanpower, it is necessary, first of all, to know just how many new workers will be needed, when they will be needed, where they are needed most, and the training required to prepare them to take over the jobs of men and to work as rapidly and efficiently under an expanded production program as the men they have replaced. The following steps may serve as a guide in planning the training system:

a. Chart the replacement needs in terms of probable losses through Selective Service and other causes.

b. Note the jobs which can be filled by upgrading present employees.

c. List the jobs to be filled by newly hired trainees as a result of replacement needs or planned production expansion for war contracts, indicating the time needed for training such replacements.

d. Analyze the jobs to determine which are already suitable for women, and which can be made suitable for women.

e. Discuss the need for employing women with the foremen of the departments in which women are to be placed. Ask for their suggestions as to which jobs in their departments women may perform most effectively. Secure their full cooperation.

f. Discuss with any union affected the employment of women and how union regulations or the present bargaining agreement may be affected. Secure full cooperation of the union.

ADAPTING PLANT FACILITIES

The attitude of a woman worker towards her job is directly affected by the kind of plant facilities available.

a. Health and rest rooms suitably equipped and properly serviced reduce absenteeism and have a favorable effect on morale. These should be installed at convenient locations.

b. Nourishing lunches and sufficient time to eat them will improve both stamina and attendance at work.

c. Proper lighting and ventilation will reduce fatigue and improve the quality and quantity of production.

d. Relief from either constant standing or constant sitting should be provided through short rest periods twice a shift. Time given for rest periods during each four-hour stretch before and after lunch will be well repaid in increased production.

e. Mechanical adjustments are seldom necessary. However, lifting devices are desirable both for men and women and usually result in increased production. Other equipment modifications may be designed to reduce fatigue.

PREPARING THE PLANT PERSONNEL

The interest and support of supervisors and workers is necessary to the success of any training program. There will be no difficulty in introducing women into new types of work if the proper preparation is made.

a. Explain to supervisors, foremen, and shop stewards, the reasons for introducing women workers to the plant, the types of training necessary and the state laws and other factors affecting woman workers. The whole-hearted support of the production superintendents, foremen, and leadmen is essential to the success of any in-plant training program.

b. Outline the wage, hour, and training policies attendant upon their employment.

c. Encourage a friendly attitude, considerate supervision, and methodical instruction through discussion of training methods in job instructor, leadmen, and foremen conferences.

d. A training committee equally representative of management and labor will contribute to the smooth functioning of the training program and will prove invaluable in enlisting the support of the entire working force. Although such committees recommend t training policy, they do not in any way usurp the prerogatives of management in conducting the training program.

e. Specific responsibility for directing the entire training program should be assigned to a plant official who is in a position to get the whole-hearted support of heads of production and service departments in regard to over-all training policies.

OUTLINING THE TRAINING PROGRAM

Now that the womanpower needs are determined, the next problem to consider is: How to train these workers for maximum efficiency? Most of them now being hired are totally inexperienced. The following outline applies to all inexperienced workers, male and female, and there is no need for separating the two groups for training purposes, except for specialized talks listed in the induction training outlines.

A well-designed training program will prepare the new worker for the job, introduce her to the plant and the job; train her in specific job operations, supplemented with instruction designed to increase efficiency on that job; and provide opportunities for additional instruction to allow for advancement. The training plan will be more clearly understood by all who are responsible for its operation if it is set forth in written form. To assist in planning the the training program, the following steps are suggested:

a. Determine the type and amount of instruction needed by inexperienced workers prior to entering the production shop. (Preparatory training)

b. Plan introductory training for groups of new employees entering a particular job classification or department. (Orientation or induction training)

c. Decide exactly what the new employee must be taught; how and by whom. The willingness, skill, and understanding of the instructor, supervisor, or leadman to teach the job are important factors to be considered. (On-the-job training)

d. Determine the type and amount of classroom instruction in specific subjects required to enable the worker to perform effectively on a specific job or group of jobs; and the supplemental instruction recommended to prepare a worker for advancement. (Supplementary training)

e. Build the program in such a way that each type of training is a coordinated part of the whole training plan.

PREPARATORY TRAINING

Women eagerly responding to the call for war production workers need some preparation for the work. War production training centers offer training to those preparing for employment, and to groups of beginning employees.

Pre-employment Training

Free training for war production employment, offered through public vocational schools wherever such need exists, prepares women to enter local war industries. Training is specific and intensive and is directed to the jobs to be filled. Labor turnover is materially reduced through the special orientation given during the process of training prior to employment. This develops sound work habits, proper attitudes and a knowledge of industry rules and regulations. The plant induction program carries on from here by presenting the specific policies of the company.

Paid Training

An increasing number of employers have found it profitable and necessary to hire inexperienced workers and to send them to the war production training centers where they "earn while they learn." In many cases they work on production which returns to the company. The training is realistic. There is a minimum of waste, yet training is not subordinated to production.

Employers willingly lend their most skilled workers as instructors for both pre-employment and paid training courses. These men are placed on the war production training payroll, given teaching techniques and proceed to train for the industries from which they come. Arrangements are sometimes made so that these courses are given at locations near the plant or on plant premises.

The training director in consultation with local vocational education representatives can determine course content which will best prepare those enrolled for the jobs to be filled.

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INDUCTION TRAINING

Thousands of women are entering factory work for the first time. Most of them have only a vague notion of what is expected of them. A well-planned induction training program will reduce the bewilderment and confused state of mind of the trainees during those important first few weeks. An induction training program for a group of women workers may include:

a. The Training Director, Works Manager, or other plant official may point out the specific opportunities of these workers to contribute to the Nation's war effort. This talk may include a general description of the company organization; the plant layout and the products; the vital character of the products as war material; the training program and opportunities for advancement under it; or a separate talk may be planned to provide training information.

b. A representative of the employment or personnel office may discuss hours, wages, pay day, where and when wages are disbursed, benefit plans, salary deductions, union affiliation, and other rules and regulations attendant upon employment. This information may also be provided in simple written form for future reference by the workers.

c. The woman counselor, if one is employed, should discuss with the women workers the special services which her office provides to them, the location of her office, and introduce her staff if she has assistants. She should invite her listeners to asj questions at this time, then bring to her any that arise in the future. The woman ccunselor should check on the adjustment to her work by each new woman worker within two or thrre weeks after her induction as an employee.

d. A Safety and Health Department representative may be invited to point out to the employee the reasons for the safety and health rules, location of first aid rooms, and health services to employees. The woman counselor or a representative of the Safety and Health Department should talk to the entering women workers on personal health, hygiene, and conduct from the "woman to woman" viewpoint.

e. A brief tour of the buildings or yard will give additional opportunity for stressing the important points covered in the talk.

f. An informal question period will give each worker an opportunity to get a clear understanding of any points not fully understood.

g. Industrial motion pictures add interest and inspiration for new workers.

h. Introduction of each new worker to the foreman of the shop or to the immediate supervisor at the job location to which she is assigned will complete the introductory training and bring the new worker to the status of an on-the-job trainee.

ON-THE-JOB TRAINING

For women workers a more detailed explanation of each job process helps to make up for a lack of mechanical background. Outline exactly how the new employee is going to do the job.

a. Responsibility for training new employees should be placed with carefully selected and well-trained job instructors and supervisors.

b. A job instructor, responsible to the supervisor, trained in how to teach an inexperienced worker will get the best results. If the job instructors are designated by a special insignia, women workers will know whom to ask for help.

c. A schedule of work processes showing detailed operations and estimating training time will guide the job instructors and those directing all phases of the training program, and will serve as a reminder of points which might otherwise be overlooked.

d. Progress and worker attitude should be observed frequently, especially during the first few weeks of employment. To insure the best production from each trainee, follow-up checks should be made.

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e. The special training needs for women workers should be kept in mind by all those charged with the responsibility of supervising women workers.

f. Records and reports of the progress of trainees will guide the foremen and the training department in over-all plans. Records will also provide a means for determining advancement of trainees on the basis of skill and ability and for evaluating training results. Periodic evaluation of training program results in terms of shortened training period, increased production, better worker morale, less waste material, and reduced absenteeism and labor turnover is recommended.

g. Suggestions from workers on how the training program is working out or how it may be made more effective will help to keep it on an operating basis.

For flexibility in the working force, it is sometimes desirable to train workers in more than one job or in a whole group of related jobs within a department. By having more than one worker trained for a job, absence of one worker will not seriously interfere with the flow of production. Relief may also be provided in this manner to workers on jobs which are particularly monotonous or result in special fatigues which interfere with efficient operation. In planning such training, it is helpful to:

a. Analyze jobs within a department for relationship of operations. (These should be within the same wage classification.)

b. Determine which jobs can be most effectively grouped with minimum training time required for transfer from one to the other.

c. Outline a schedule designed to train workers in these job groups.

Opportunities for advancement of women trainees should be the same as for men. Upgrading may be achieved through additional training on the job or through supplementary training, or both. In planning a program for advancement through training on the job, the operations may be listed in progressive order following as closely as possible production or training sequence.

SUPPLEMENTARY TRAINING

Supplementary training is intensive in-service training for specific occupations given outside of the work station at which the worker is employed. It is designed to improve the skills of the worker on the job or to prepare for promotion to a job requiring a higher level of skill.

In most war production areas, excellent instruction in the desired subjects is provided by the local vocational schools. Where schools are not readily accessible for class work, some companies are able to make arrangements with the schools for supplementary courses to be given on the premises of the plants, and in some instances companies provide such instruction themselves. Many companies have found that it pays to provide supplementary training as part of the day's work.

Supplementary courses, to be most effective, should be:

a. Designed to meet the needs of specific jobs. The minimum amount of supplementary instruction needed to bring each worker to the highest skill in her job, or the job for which she is training, should be determined.

b. Worked out in consultation with the production department for which each is designed.

c. Taught by an instructor who knows the requirements for jobs of the production department for which the workers are being trained.

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APPRENTICE TRAINING

Women war workers, as a group, are not interested in long term training in preparation for a career in a skilled trade. Women have proved, however, that they are well adapted to some trades. It is important to be sure that the woman apprentice is sincere in her desire to learn the full trade, and that the employer is sincere in his intention to provide the opportunity.

Women admitted to apprenticeship programs should be employed under the same work standards and training schedules as the male apprentices. Care should be taken that these minimum standards recommended by the Federal Committee on Apprenticeship are met:

a. An apprenticeable occupation is considered one which requires 4,000 hours or more to learn.

b. Written agreement containing an outline of the schedule of work processes to be learned on the job.

c. Progressively increased wage scale which should average not less than 50 per cent of the journeyman's rate over the period of apprenticeship.

d. Related classroom instruction of at least 144 hours per year.

e. Registration with the State Apprenticeship Council (or with the Federal Committee on Apprenticeship where there is no authorized State Apprenticeship Council).

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WOMEN COUNSELORS 1/

The Woman counselor provides service to the workers and to management on the special problems involved in the employment of women and acts as a liaison between them. In plants where the number of women workers employed does not warrant a full-time woman counselor, these duties might be assigned to a woman worker selected for those qualities which would enable her to gain the confidence of the women and the production supervisors. Services of the woman counselor may be:

For the Women Workers

a. Know the women workers and understand their problems.

b. Help them solve individual and group problems.

c. Assist them in the transition to new working conditions through taking part in their induction training.

d. Recommend to management such facilities as will contribute to their health and welfare on the job

e. Advise the women on community services, and act as a liaison between the plant and the community on such problems as child care, housing, transportation, schools, and medical and shopping services.

For the Management

a. Assist production supervisors in the effective use of women workers, relieving them of detail work in solving personal problems of women under their supervision.

b. Advise on sound and practical policy on safety, health, and clothing regulations and facilities which will contribute to the health and convenience of the women workers. Plant medical service reports provide specific information on which to base safety and health recommendations.

1/ *Because of frequent reference to the part of the woman counselor in the training program, this is offered as a guide to those who are giving consideration to the employment of a Woman Counselor. Further information on this subject may be secured from the Women's Bureau, U. S. Department of Labor; and the Women's Division, Department of Vocational Education, U. S. Office of Education, Washington, D. C.*

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c. Through her observations in the shops, make recommendations as to the jobs in which women can be effectively placed. She should have a full knowledge of all of the jobs in which women are employed and be able to advise on placement in less strenuous work those women not physically able to do the work assigned without injury to themselves, and also those which might be performed by part-time workers.

d. Advise with the training department on details of training programs as they affect women workers both in the plant and at war production training centers. Through such cooperation, continuity in the whole training plan for the women can be achieved.

Desirable Characteristics of a Woman Counselor

A woman counselor should be a pleasant and sympathetic person, but sufficiently firm to stand by decisions and insist on regulations being following. She should be able to recommend staff policies on the employment of women. She should have sufficient knowledge of psychology or experience in working with people to be able to work out effective methods of handling personal problems. She should be able to act with impartiality, and to evaluate objectively the complaints of the women workers. In some instances, such a woman might be found on the production line.

A woman counselor should have some knowledge of industrial practices, especially those of the company in which she is to be employed, and she should be able to gain the cooperation of the shop supervisory force. She should learn the job classifications of every department in which women are to be employed. She should know the state labor laws in connection with the employment of women and be able to advise staff members of them, as they affect the employment of women in the plant. She should know what standards have been recommended for their working conditions that will result in their most effective use. However, with the right personality traits, and sufficient intelligence, the practical information can be learned.

To Work Effectively

a. She should be a party to staff conferences on policy affecting women workers, and should be able to provide advisory service in regard to women workers to all plant departments.

b. She should be available to women workers in the plant at all times. Her office should allow for privacy of interviews and be accessible to the women from the yard or plant, so that they can enter in work clothes. If there are a large number of women workers, assistants should be assigned to work under her direction.

c. She should have access to records showing on which jobs each woman in the plant is working, so that she can intelligently make recommendations for the solution of problems.

d. She should visit the work station occupied by every woman sufficiently frequently to be well acquainted with working conditions of each woman employee.

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TRAINING ASSISTANCE
available through
APPRENTICE-TRAINING SERVICE

The services briefly outlined below are provided by field representatives of the Apprentice-Training Service to industries without cost to them:

1. Training apprentices.—Assistance is given in improving or inaugurating apprenticeship programs and providing suggestions on methods and techniques relating to the operation of such programs and on adapting apprenticeship to war production needs.

2. Training advancing workers.—Advisory assistance is provided regarding the training of advancing workers. These are workers being trained for skills of more limited scope than journeymen, but which require a fairly high degree of skill. The period of training for such workers is shorter than for apprentices but the problems of training are comparable.

3. Over-all training.—Advisory assistance is provided on over-all training problems and the development of complete training programs which provide on-the-job training coordinated with the training services supplied by other agencies.

4. Labor relations affecting training.—Assistance is provided in dealing with labor problems encountered with the operation of on-the-job training programs. Typical problems applying to training include: seniority rights, wages, number to be trained, hours of work, establishment of training schedules and break-down of operations, establishment of shifts, standards of selection, and supervision of trainees.

5. Supplementary labor agreements.—In plants where employees are organized, assistance is provided in preparing supplements to established bargaining agreements where the existing agreement is not sufficiently flexible for the war training and employment situation.

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REGIONAL REPRESENTATIVES

For information regarding the services of field representatives of the Apprentice-Training Service in advising on the development of complete in-plant training programs and the establishment of apprenticeship systems, communicate with the nearest representatives. Their names and addresses are listed below.

Region I (Maine, N. H., Vt., Mass., R. I., Conn.)	E. K. Jenkins, Supervisor Rm. 744, 55 Tremont Street Boston, Massachusetts
Region II (New York State)	John M. Marion, Supervisor Rm. 617, Old New York State Bldg. New York, New York
Region III (Pa., N. J., Del.)	Glenn H. Feller, Supervisor Rm. 922, 21 South 12th Street Philadelpnia, Pennsylvania
Region IV (Md., Va., W. Va., N. C., D. C.)	Robert F. Handley, Supervisor Rm. 401, 1025 Vermont Ave., NW Washington, D. C.
Region V (Ohio, Mich. Ky.)	John E. Morley, Supervisor Rm. 687, Union Commerce Bldg. Cleveland, Ohio
Region VI (Ill., Ind., Wis.)	Cecil L. Utterback, Supervisor 222 West Adams Street Chicago, Illinois
Region VII (S. C., Ga., Tenn. Miss., Fla., Ala.)	J. M. Parmelee, Supervisor Rm. 600, Grand Theatre Bldg. Atlanta, Georgia
Region VIII (N. Dak., S. Dak., Nebr., Iowa, Minn.)	John F. Barrett, Supervisor Rm. 500, Midland Bank Bldg. Minneapolis, Minnesota
Region IX (Mo., Kans., Ark., Okla.)	Taylor F. Custer, Supervisor Rm. 1600, Fidelity Building Kansas City, Missouri

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Region X (La., Tex., N. Mex.)	Travis J. Lewis, Supervisor 6th Floor, Mercantile Bank Bldg. Dallas, Texas
Region XI (Mont., Idaho, Utah, Wyo., Colo.)	Edward E. Goshen, Supervisor Rm. 614, Security Life Bldg. Denver, Colorado
Region XII (Oreg., Wash., Ariz. Nev., Calif.)	Broncel R. Mathis, Supervisor Rm. 701, Western Furniture Exchange San Francisco, California

Miss Nienburg
Jones corp
Mary Pinchot Meyer
Lawrence

TRAINING

Womanpower

BUREAU OF TRAINING
WAR MANPOWER COMMISSION
WASHINGTON D.C.
OCTOBER 1943

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TRAINING WOMANPOWER

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FOREWORD

By Philip S. Van Wyck, Acting Director
Bureau of Training
War Manpower Commission

At the end of the summer of 1943 when these reports from the participating agencies of the Bureau of Training and the Regional Chiefs of Training were compiled, it appeared that industry was rapidly approaching the point where women would be accepted in every line of work except in occupations involving heavy physical labor or unusual hazard.

All training programs were reflecting a substantial increase in the percentage of women enrolled, with the general trend constantly upward.

In tight labor market areas, many special training courses had been established exclusively for women. Examples of such were certain Engineering, Science, and Management War Training courses at Illinois Institute, the University of Southern California, and the University of Minnesota.

Several interesting campaigns to enroll women in war training courses had been successfully undertaken. Those in St. Louis and northern New Jersey were particularly notable.

A rapid transition from strictly preemployment to paid-training courses for women was apparent throughout the country. In many instances, this trend had forced location of the local war training centers into buildings close to the war plants. In some instances, as was the case with Sun Ship in Philadelphia as well as others, the introduction of paid training had transferred the entire training program into the plant, though the activity was still being carried on by the local vocational school.

A few plants were taking Negro women into paid-training programs. This was particularly notable on the West Coast where Dravo Shipbuilding Company and one or two others were following this practice. The Bechtel-McCone-Parsons Corporation at Birmingham was also hiring Negro women trainees.

In general, as of the date of the reports, organized labor was sympathetic to the training and employment of women, and in many cases local unions were providing effective assistance in setting up certain programs.

The experience of many plants who had employed women indicated a relatively higher rate of turnover among women than among men. It is a firm contention of the Bureau of Training that excessive turnover is, in large part, due to faulty training. The Regional Chief of Training

in Region XII, where a sample study was made as to the relation of training to turnover, stated that "the longer the period of training, the longer women stay on the job."

Training is always going on, day and night, wherever work is being done and workers are learning new jobs or learning to do old jobs better. The greater part of this training is unknown or unrecognized as training. It is the training the worker gets by the "pick-up" or "trial-and-error" method. It is very, very expensive training. The costs are more or less concealed, but they can be discovered in some part in spoiled work, wear and tear and breakage of tools and equipment, wasted time, worker dissatisfaction leading to lowered morale, bad labor relations and a high labor turnover. These items are difficult to spot accurately for the ledger, but often run costs up to the point that a contract may be lost. Worse yet, they hinder our war effort.

Whether we speak of men workers or women workers, we must remember that training has to continue for the duration. There is a fundamental reason why this is true. Production requirements for modern war are constantly changing. Experiences on the field of battle are constantly translated into improved equipment designs. When you change a design, it means that you have to change your production methods. A change in production methods means new jobs to be learned in the plant. Learning new jobs requires training. One must master a new job before his abilities can be put to maximum use.

The maximum use must be made of all workers' abilities. Because, as has been said before, but it cannot be repeated too often: We have a victory to win.

After due consideration of all reports relative to training and womanpower, as noted in the following pages, the Bureau of Training drew up its recommendations for an overall training program for women in 1943-44. Briefly stated, these recommendations are as follows:

1. Each war production plant should be assisted in analyzing and determining its womanpower needs, and recognizing what training programs are necessary if these needs are to be met adequately.

2. Careful planned programs for training should be developed by each plant, giving as much weight to this activity as to other production problems. The government training services available through the War Manpower Commission for in-plant and out-plant training of workers and supervisors should be fully utilized.

3. Public training agencies as well as private training officials should recognize the necessity for supplying complete

and well-organized training to women as a substitute for job experience, which most of the women to be hired will lack.

4. Employers are urged to consult with the Regional Chiefs of Training, who are equipped to advise and assist plants concerning their training problems. Training programs best suited to meet the specific needs of individual plants or industries will be developed in cooperation with management.

5. Top management must support plant training programs to make them effective. Well-planned training will not only make a new worker a productive worker in a shorter period, but will also result in increased production output, lower loss from scrap, improved safety records, and, in many cases, lessened labor turnover. These are results which will appeal to management.

6. Women counselors should participate in planning and carrying out training programs for women workers, emphatically so in the beginning stages. Women employees should be made acquainted with all such counseling service the first day of employment.

PART I

SUMMARY OF REPORTS FROM THE PARTICIPATING AGENCIES

OF
THE BUREAU OF TRAINING

In all training courses sponsored and supervised by the War Manpower Commission's Bureau of Training, women are now entering in great numbers.

In December 1941, the percentage of women (new enrollments) in the training courses was 4 percent. In May 1943, the percentage of women (new enrollments) in training was 31 percent of the total.

As of May, 1943, the cumulative total enrollment of all programs--men and women--was 8.5 million. Of these enrollees, 1.5 million were women.

VOCATIONAL TRAINING FOR WAR PRODUCTION (VTWPW)

During 1942-43, the public schools of all States in war production training programs, trained 697,000 women:

Preemployment--374,000--38 percent of all trainees
Supplementary--323,000--24 percent of all trainees

During 1943-44, it is anticipated that this figure must be increased by 50,000 more women.

Women have entered practically every type of course offered.

The largest number of women trainees have been in airplane work, machine tool, ship welding, and radio communications.

Supplementary training, particularly in tight labor areas, is now and will continue to be of greatest importance. In many instances, unskilled employees, including many women, are listed as taking "supplementary courses" when they are actually paid-trainees taking their first pre-production training.

Paid-trainee programs are growing in number. Probably 80,000 to 100,000 trainees are now enrolled in earn-while-you-learn programs established by 650 to 700 plants. In some such programs, women constitute 65 to 95 percent of the trainees.

When paid-trainee programs are carefully worked out by Regional Chiefs of Training, in response to specific demands of specific industries,

they can be excellent labor-stabliization influences, tending to reduce both turnover and labor hoarding.

RURAL WAR PRODUCTION TRAINING (RWPT)

Women are increasingly interested in the Rural War Prpduction Training program. In January 1943, 15.5 percent of those enrolled for train-in all types of courses were women; in February this percentage had risen to 19.2 percent; in March it was 22.3 percent of the total; and in April, it was 29.9 percent of the total.

In May, 1943, the 49,966 women who were in training constituted 34.2 percent of the total number of persons enrolled. The largest single group of female trainees,---33,657 women--or 67.4 percent of all women in active training status--were attending courses in processing food for farm families.

Other large groups were in the following courses:

Poultry production courses--5,656 women or 11.3 percent of the total number of women in training.

Egg-production courses------3,620 women or 7.2 percent of the total number of women in training.

Vegetable production courses-2,721 or 5.4 percent of the total number of women in training.

Large percentages of women in the courses were in the following States:

Arkansas------4,581--50.4 percent
California----3,230--51.2 percent
Louisiana-----8,123--44.1 percent
Mississippi---4,571--36.8 percent
Texas--------3,287--26.6 percent

In these five States, over 47 percent of all women enrollees were in training in May, 1943.

ENGINEERING, SCIENCE, MANAGEMENT WAR TRAINING (ESMWT--formerly ESDT AND ESMDT)

During 1940-41, women constituted only .7 of one percent of the enrollment of 120,000. (Program was limited to engineering.)

During 1941-42, women constituted 8.7 percent of total of 483,503 persons enrolled. (Chemistry, physics, and management added.)

During 1942-43, critical labor shortages in technically-trained personnel became apparent. It was necessary to accept for ESMWT courses all women applicants capable of benefitting from such technical training.

In 1942-43, an average of 21.5 percent of all enrollees were women. The total number of enrollees in ESMWT courses in 1942-43 was 532,682.

Since December 1942, women have constituted about 23 percent of the total number of enrollees, and it is believed this percentage will remain fairly constant from now on, varying perhaps between 23 and 25 percent.

This short-course training has been retarded by critical labor shortages in that trainees have often been unwilling to sacrifice even as little as three months training time before earning. Some war plants, however, have arranged to pay wages to ESMWT trainees, thereby meeting this problem with a practical solution.

In many instances, trainees are taking ESMWT courses as supplementary training, rather than as preemployment.

TRAINING WITHIN INDUSTRY (TWI)

Planning for the use of womanpower in direct war production industries or in other industries essential to the war effort, is not within the scope of TWI activities, but the result of TWI courses taken by supervisors is certainly effective in helping trainers to train women on the job.

Relative to TWI courses--JIT,JMT, and JRT, - accurate figures as to the number of trained women supervisors are not available, for the reason that all TWI in-plant training is for supervisors, with no distinction as to sex, race, or color, and records do not break down on such bases.

In December 1942, however, a cross-section survey indicated that 9 to 10 percent of the supervisors trained as of that date were women, and that the percentage was steadily increasing. Later reports confirmed this, and a survey conducted in June 1943 by TWI District #5 shows that in the State of New Jersey 5,900 supervisors out of 39,600 TWI-trained, or about 15%, were women.

To date TWI has trained approximately 725,000 supervisors. Application of the percentages cited to this total indicates that our estimate as to the number of women is conservative. Therefore, at least 75,000 and probably 90,000 women have successfully completed TWI training for supervisors.

In the Army Supply Forces, where more than 112,000 supervisors of civilian personnel have completed TWI programs, the percentage of women

runs appreciably higher than in most industrial establishments, with a larger proportion of women employees and more women supervisors. Here again, however, the Army has made no distinction as to male or female in its records of supervisors designated for training.

In the application of TWI training programs in hospitals, which has spread with great rapidity in the last four or five months, more women than men supervisors are being trained, but here, also, actual figures are not available.

In the field, TWI has women trainers who have trained supervisor groups composed solely of men or women, or groups that were mixed as to sex. These women trainers have been selected, not with reference to sex, but on the basis of their predeliction for the work, aptitude, and demonstrated ability.

APPRENTICE-TRAINING SERVICE (ATS)

The Apprentice-Training Service of the War Manpower Commission has given considerable study to the utilization of women workers in the skilled trades in war production plants. It has recently released a bulletin entitled, "Training Women For War Work," which is available for interested plants and training agencies.

Advancing Worker Program

The Apprentice-Training Service suggests that generally the soundest approach to training women workers is through the advancing worker program recommended by the Federal Committee on Apprenticeship.

Under an advancing worker program, an employee is given training in a group of related skills in planned succession. This results in a specialist who is fully trained in a part of a trade. For instance, in the field of automotive maintenance, women might be trained as specialists in the electrical department or in the clutch department, or they may become lubrication experts. Some of these women will be trained in two or three of these specialized fields within the trade.

Under peacetime conditions, those who will remain in the trade can be given full credit by industry on an apprenticeship term for the work processes which they have completed as specialists and thus become all-round skilled workers.

Women Apprentices

The Federal Committee on Apprenticeship, in making recommendations on wartime sources of apprentices, listed women as a possible source, and women are being trained under bonafide apprenticeship programs in

limited numbers. The widespread hiring of women as apprentices is not considered advisable because of the uncertainty of employment of women in the trade after the long period of training has been completed.

Most girls entering war work are not interested in long-term training in preparation for a career in a skilled trade. Girls who start an apprenticeship may soon be attracted away from it by the higher rate of pay offered trainees.

Union regulations in some trades admit women to full journeymanship only on a temporary wartime basis. Many union officials are emphatic in their opinion that there will not be career opportunities for the girls after the war is over. Preference must be given to the members returning from the armed forces. Therefore, apprenticeship opportunities for women should be limited to the trades in which there are reasonable prospects for the continued employment for women.

Future Trends in Training Womanpower

We can no longer dismiss the subject of training womanpower with the statement that "training women is the same as training men." This attitude is responsible to some extent for the careless and haphazard way in which women and other inexperienced workers are being introduced to war production jobs. The most obvious and measurable result has been high turnover. Other results, such as lack of desirable applicants, delayed production, waste and inferior products, are not usually admitted but are slowly being recognized. By approaching the training problem through recommendations on training women, improved methods of training all incoming workers will undoubtedly result. Certain emphases are needed in training women workers.

Pre-employment Training

Pre-employment classes have in most sections proven helpful during the past year but they cannot be relied upon this year except in the few plentiful labor supply markets remaining. In critical labor areas where the big job must be done, workers are not willing to attend classes before being placed on the payroll. Many of them have been recruited from other parts of the country and cannot wait even a few weeks before earning wages. Training which will orient green workers in the plant, give them practice with the tools they will use, acquaint them with terms, etc, needs emphasis. Those who are planning introductory training should be mindful of the fact that every tool, machine, and term is new and foreign to most women now accepting war jobs.

Induction Training (Orientation)

The term "induction training" is being used by companies giving adequate orientation training frequently combined with practice work and instruction on actual processes each new hire will be performing in the beginning job in the shop.

An example of this type of introductory training for all new hires is the 40-hour induction training program introduced at Boeing Aircraft in Seattle in April 1943. In response to a circular letter to the General Foreman of 26 production departments asking for an opinion on the value of this training in comparison with the former method of sending new employees directly to the departments, the response was unanimously and enthusiastically in favor of the courses. Most of these production department heads were not in favor of the course when it was started. Induction training at the New England Shipbuilding Corporation, South Portland, Maine, is given at the plant training center. The length of the training period varies with the crafts.

If the introductory training offered is purely orientation, persons without previous experience in the work for which they are hired should also be given pre-production training. Many of the large plants and shipyards which use the term "orientation" confine their programs to superficial and stereotyped information giving sessions of from two hours to one day. Frequently, new hires are bewildered as a result of trying to absorb too much information in too short a time.

Pre-production Training (Paid Trainees)

To train new hires for the specific jobs for which they have been employed, it is necessary to give practice work with tools and materials which will be handled in the shop. Acquaintance with shop terms, safety habits, etc., should also usually be included. This type of training may precede or follow the orientation training, depending upon whether it is given on plant premises or at other locations. In some instances this type of program offered under the War Production Training program of the vocational schools is designated as a supplementary course.

One effective example of pre-production training noted is the course offered at the Alameda, California, Naval Air Base. Although this course is given in cooperation with the vocational schools, it is closely directed by the Navy and is considered a shop of the Base. Materials are supplied by the Air Base and the course content is reviewed by it. The instructors are from the Base but are paid by War Production Training funds. Some actual production work is done by the more advanced trainees. The Sheet Metal Repair Course is four weeks. In this time, most of the trainees learn all of the processes necessary in patching shrapnel holes in the fuselage, wing, gas tank, etc. Those who advance quickly are placed on production work in the last few weeks. An airplane instrument course of from 8 to 12 weeks is also conducted on the same basis. Most of the employees in these courses are women.

On-The-Job Training

The principal problem in this phase of the training seems to be the need for more thorough training of supervisors, leadmen and job instructors in how to introduce women to the beginning jobs and assist them in learning to do the full job without doing it for them. There also needs to be a follow-through by the foremen, checking at least weekly to see what progress is being made. Individual records of progress on the job kept by the instructor, transmitted to the foreman periodically, and available

to the training department will help in building a coordinated over-all training program. Training directors seem to be amazingly unfamiliar with what training is given on the job. They say "Well, we have had JIT," and let it go at that. Training of job instructors is an essential part of the over-all training program. It needs to be followed through and supplemented by instructors conferences discussions.

Supplementary Training

In labor shortage area where there are so many green workers coming in who will need to be upgraded in spite of themselves to meet the plants' needs for more skilled workers, the only answer seems to be supplementary courses on company premises or at nearby locations, and in many instances on company time.

Women Counselors

Effective use can be made of women counselors through their participation in the training program, particularly in the induction training. Women should be acquainted with all such counseling service the first day of employment. An interesting example of the use of the woman counselor in training leadmen and instructors was observed at Marinship in California. The training department was carrying on a full week of training for all leadmen in the yard. Included in the schedule was a full hour session with all the women workers sitting in with the woman counselor, giving her an opportunity to explain her services to the women and to the production supervisors. The discussion period following was also mutually helpful.

PART II

SUMMARY OF REPORTS FROM REGIONAL CHIEFS OF TRAINING

REGION I

Special Paid-Training Program for Women

There is in operation a special training program for women for the Fore River Plant of the Bethlehem Shipbuilding Corporation. Two courses are being offered, each enrolling about twenty women who were jointly selected by Northeastern University and the Bethlehem Shipbuilding Corporation; one in Technical Drafting and the other in Introduction to Industrial Engineering. The girls are paid $25 a week by the Bethlehem Shipbuilding Corporation during the ten-week period of training. They punch a time clock at the University morning and night and put in forty hours of classwork and supervised study. Part of the group will be released upon request of the Shipbuilding Corporation before the expiration of the course in order to fulfill certain immediate demands in their drafting department. So far as is known, these are the first courses of this type to be given under ESMWT in our area.

VTWPW Course in Instrument Assembly

Women are being trained as instrument assemblers for the Brown and Sharpe Manufacturing Company. This course is being given at Rogers High School, Newport , R.I. These trainees go through in groups of 25 on a four-month program learning the entire process of assembling vernier calipers. This is the first experience this firm has had with women in this department and is proving satisfactory.

Forty-one of the first forty-two vernier calipers assembled passed the strict requirements of this firm which is rated as one of the foremost manufacturers of fine tools. The one caliper which failed to pass inspection was rejected because the figures were stamped too deeply and upon examination the training class was absolved from blame for this since the figures were impressed by another company.

Human Interest

"The reason I took up welding is because my fiancé and three brothers are in the service and my little brother is going to join the Navy as soon as he turns seventeen which will be next month, and the least I could do was to take up something to help build ships to win the war. Welding was the quickest course to qualify me. I received training at the Quincy Trade School and my instructor was a man of understanding and knowledge of the welding trade. The school I had my training in is the outstanding school of this area. I qualified for my job in less than two weeks and am in the yard now going to school again, to become a production welder. I find welding fascinating and interesting and like it very much. I would like to keep it up after this is all

over but I expect to get married as soon as my fiancé comes home from the service, so that will be impossible."

A young woman trained as a ship welder in one of the War Production Training classes is now employed as a production welder at The Bethlehem-Hingham Shipbuilding Corporation. Her work has been such that she recently qualified for the individual Navy E award. This young lady had previously had two years of college training and been employed as a secretary to an Army major in the dental clinic of an Army camp in Florida.

REGION II

Paid-Training-Aircraft

At present, three of the largest airplane manufacturers in New York State have paid-trainee programs in several of the schools, in which there are approximately 1000 women currently being trained in the various phases of aircraft work. It is anticipated that these programs will continue for a considerable length of time. Approximately 8300 women have been trained on a paid-trainee basis for the aircraft industry in Region II to date. We are now in the process of setting up a similar training program for another large airplane company in Long Island and it is expected that the large majority of people to be trained will be women.

One of the aircraft companies in Region II employs 104 women in their aircraft sheet metal department and all but three were trained in the schools, and they insist that all new employees be trained in the same way.

Human Interest

Mrs. Katherine L - Italian-born, American citizen, taking a course in machine shop practice in the evening. Mother of a large family and also a grandmother. Over 60 years old, still cares for her own mother, who is nearly 90. She is seeking a job on the swing shift for all-night work so that she can be home during the day to look after her family and her mother. The last time we heard from her, she was answering a call from the Navy Yard where she had previously filed an application to work as a machinist's helper. Mrs. L spends her Sundays visiting her crippled son at the institution where he is confined.

Mildred G - taking mechanical drawing. Mother and grandmother of three sons, two are lieutenants, junior grade, United States Navy. The third son is a private first class in the Army Air Corps. Her husband is a major in the United States Army. She is Chairman of Training of the CDVO in her county. She is a member of the Board of Trustees of the Institute of Art and Science and is also the Third Vice Regent of the Daughters of the American Revolution and is a past president of the Society of Belleslettres. She hopes to get a job as soon as she is through with her training.

REGION III

VTWPW - Philadelphia

The increase in female trainees in Philadelphia is somewhat typical of the Region in the VTWPW program. The greatest gains have been made in the "Pre-Production Supplementary" courses for paid-trainees. This is seen in the following statement for the Philadelphia VTWPW Program:

October, 1942	Enrollment		
Pre-employment	2,077	Female	31 percent of total trainees
Pre-Production Sup. (Paid Trainees)	833	"	30 percent of total trainees
Sup. Up-Grade	337	"	6 percent of total trainees

June 30, 1943	Enrollment		
Pre-employment	602	Female	26 percent of total trainees
Pre-Production Sup. (Paid Trainees)	1,329	"	84 percent of total trainees
Sup. Up-Grade	838	"	24 percent of total trainees

Sun Shipyards

A large proportion of the 1,500 women workers at the Sun Shipyards are Negroes. Some of the Negro women welders are working in less hazardous places on the ways. This work requires women with a rugged build sufficient to support and work with welding hoses 150 to 200 feet in length.

The work in the machine shops of the yards is too heavy for women to handle, with the exception of a few instances where they are used as helpers. Some of the women have been used successfully as guards in the plant--others are employed in making refinery equipment.

North Jersey Area - VTWPW Women Recruitment Plan

During June and July, 885 referrals of women were made to the schools at the Victory Theatre and of this number 111 reported for training. Many of the others obtained jobs in war plants where in-plant training is provided.

In the northern New Jersey area there is a scarcity of women enrolling for training in war jobs. To encourage recruiting, a Victory Theatre has been erected by the Department of Education of New Jersey in cooperation with the WMC office in which the larger industrialists of the area give weekly demonstrations of work and entertainment to interest women in making application for work. A goal of 26,000 women has been set to relieve manpower shortage in 209 firms. Important industries taking part in the campaign are: Westinghouse, Western Electric, Federal Shipbuilding and Dry Dock Company, Pollack Manufacturing Company, Breeze Corporation of America, Titeflex Metal Hose Company, and RCA.

Training for work in these plants will embrace practically every type of craft in which there is a demand for workers in industry. There are 45 schools available in 24 training centers in the State of New Jersey.

VTWPW - Delaware

The programs in operation for training women in Delaware are largely in-plant. In Wilmington all of the VTWPW classes which were conducted in vocational schools were moved into plants. Besides this training many plants conduct their own training, using their own instructors.

The Dravo Shipbuilding and Drydock Company is at the present time employing 1,400 women - 3 per cent of whom are Negroes. 10,000 workers in all are employed in the yards. There is a school on the grounds where all training takes place. The instructors are provided by the Board of Education and the facilities by Dravo. This school has training in arc welding, electrical work, sheet metal and copper work. The program is conducted on a three shift basis with women on all shifts. Only first and second shifts are handling trainees, but upgraders work on all three shifts.

There is also an auxiliary instruction program open to women at Dravo selected by their superintendents to take mathematics, elementary blue print reading and advanced blue print reading with special emphasis on their particular field of work. This auxiliary training is for 1½ hours per day, five days a week for four weeks. Women are engaged in the Dravo yards in the following types of work: sheet metal, electrical, pipefitting, structural (assembly, layout, tool cribs, and copper), yard maintenance, hull construction (pipefitters, tackers and welders), and as helpers on the outfitting docks.

The Bellanca Aircraft Corporation is making use of older women as burrers - some are also being employed as inspectors, but the majority of the women are between the ages of 21 and 35 and do work in detail assembly, acetylene welding, hand gun riveting and milling machine operations.

Forty-one per cent of the employees at the present time are women, with a predicted rise to fifty-six per cent at the end of six months. It is the plan of the company to make all turnover replacements with women during the coming year. This will require specific in-plant training. In addition to training, the accommodations provided by the company for the physical comfort of its women workers, together with its recreation program and social service department, have made it possible to hold a full quota of workers.

The New Castle Army Air Base Ferry Command and Sub-Depot are employing women qualified in Civil Service for mechanic learners, maintenance, repair and assembly, disassembly, motors and radios. The women were originally sent to the Middletown Air Depot near Harrisburg, for their training, but of late classes have been instituted in the shops

in New Castle and all training is done there. The training program is conducted in close cooperation with the Delaware Board of Education. All classes of employees are represented at work from girls leaving school at the sixth grade to the wives of professional people.

The women who fail as mechanic learners are transferred to the parachute depot and stock room. Fifty per cent of the workers at the base at the present time are women - 10 per cent of whom are Negroes. Many of the women exhibit a keen adeptness in mechanics. One young girl of 19 started in as a mechanic learner and is now an instructor in the shop.

REGION V

VTWPW

The Fisher Bomber Plant in Cleveland is hiring and training men and women in the Cleveland vocational schools. At present women represent about 60 per cent of the personnel. The schools have training stations for 2100. This company plans ultimately to employ a total of 33,000 workers.

At the Excello Corporation, Detroit, women represent 85 per cent of the inspection force and large numbers of women are employed on assembling and other operations. The vocational school furnishes instructors and women are trained right in the plant.

REGION VI

ESMWT - Illinois Institute of Technology

The short-term war training program at Illinois Institute of Technology at Chicago is typical of the college-level war training program for women established at colleges and universities throughout the country.

The total number of women now enrolled in ESMWT courses or who have completed such courses at Illinois Institute exceeds 1,000. Among the 65 separate courses offered, the enrollment through July 1943 has been as follows:

Industrial chemistry	97
Engineering Drafting	293
Ordnance inspection	556
Metallurgical techniques	19
Engineering fundamentals	28
Total	993

A survey of this group of 1,000 women reveals some interesting statistics. The overwhelming majority of them are housewives whose ages range from 19 to 52 years. Almost 50 per cent are mothers and a few are grandmothers. Despite their diversities of age and background these women all have a single common objective--helping to win the war. Their earnings after completion of an average 10 weeks course range from $1500 to $2600 per year.

A careful study of a number of case histories indicates that the great majority of these women come from families who are making heroic sacrifices to help win the war. Many of these women have abandoned fascinating careers in socalled- "non-essential pursuits" to prepare for employment in a war job. A few examples of typical cases follow.

An artist of international reputation whose paintings have been exhibited in the United States and Europe has substituted her drafting pencil for a brush and pallet for the duration.

A mother trained her two sons, ages 17 and 11, to do the house work in order to free her for war training. The youngsters prepare meals, do the shopping, and handle the family washing every Saturday.

Graduates from Illinois Institute in the fields of engineering and chemistry have organized societies among themselves to influence more women to do their part in getting war jobs. These societies are known as WEEDS (Women, Emergency, Engineering, Drafting Society) and WICS (Women, Industrial, Chemistry Service). Another function of these societies is to translate the experiences in war plants into suggestions to instructors for improvement of the courses taught at Illinois Institute.

ATS - Plan for Diamond Die Industry - Fort Wayne, Indiana

Among the war plants the Apprentice-Training Service has assisted in the training of women, the diamond die companies in Fort Wayne, Indiana, are particularly interesting because, though they are relatively new and small in personnel, their products are highly important. Until 1939 produced only in Europe, diamond dies are essential in the production of fine wire-sizes of .0015 inches and less --for radio and aircraft instruments. The increased demand for such dies, combined with the virtual elimination of European sources of supply, placed the few American companies now in operation under a severe strain. By the end of September, 1942, these companies were unable to meet their war contracts. Thus, in the face of swiftly increasing demands, war plants faced an acute shortage of these critical dies.

When our field man visited the companies at the request of the War Production Board he discovered that the owners were employing no women and were furthermore convinced that women could not capably perform this type of precision work. At the same time, the employees in most plants objected to the employment of women, both because they believed women would be incompetent and because they feared women might replace men permanently. One plant which was contemplating a 50 per cent expansion, however, was willing to employ women and older men and to experiment with training them. Within a few weeks, other companies decided to follow this same policy.

Generally, the plant owners believed that it would be impossible to train new workers for fine drilling in less than a year; but

they estimated that in six months women might be trained to work on larger dies which require less skill in drilling. On the advice of our field representative, they decided to place six to ten new employees--chiefly women--under the supervision of an experienced workman who had been given training in teaching techniques. This workman's entire job was the supervision of trainees on a planned program beginning with the drilling and polishing of larger size dies and gradually working down to smaller sizes.

Within a few weeks, the plants which adopted this training system reported an upswing in production. The original idea that women could not do the work had disappeared; in fact, eighteen year old girls made the best progress in training. And after five to ten weeks of training--instead of six months to one year--eighteen of the trainees were producing at 70 per cent of the production rate of the more experienced employees. Some girls were turning out approximately as good work as some of the men who had been drilling and polishing for a year.

The plant owners were pleased not only with the rapid progress of their new employees but also with the noticeable uplift in morale which was felt in the plants after training began. Older workers became interested in experiments to improve the quality of the dies produced. Because this microscopic work demands such precision, slight imperfections are serious and improvements in technique are significant.

Companies participating in the Fort Wayne industry-wide program include Indiana Wire Die Company with 10 women now in training who will be followed by 10 more in the near future; Fort Wayne Wire Die Company with a present quota of 20 women and 4 men and a potential total of 40 trainees; and Carl Lugenbill Wire Die Company which has trained 20 finishers and drillers, mostly women. In addition, a fourth company, Ajax Industrial Supples, Inc., is training women in accordance with some ATS recommendations.

Human Interest - Indiana

This is the story of a young American woman whose husband died for his country, a woman who now is living and working with the purpose of helping to win the war, determined that her two children may enjoy the privileges of a free America and some day may have a college education which their mother could not have.

Mrs. Jan Moore was working in an Indianapolis dentist's office July 7 when she received a War Department telegram announcing that her husband Staff Sergeant James Edward Moore, had been killed June 28 somewhere in the South Pacific. He was a gunner on a Liberator bomber.

Mrs. Moore picked up the telephone, called a taxi, and went immediately to P.R. Mallory Co. Indianapolis. That was all she could do now. She couldn't help Jimmy. She and Jimmy had talked it over when he was home on a furlough in January. If she went to work in a defense plant, he wanted her to work at Mallory's because they were making a product that he used on the Liberator bombers.

Along with other beginners at Mallory's, Mrs. Moore was sent to take training in a class conducted under the War Production Training program of the Indianapolis Indiana public schools. She was assigned to a group at the Arsenal Technical High School. This week Mrs. Moore will complete the training course and will receive a certificate.

Women of Indiana have taken up the challenge of the fight for Freedom.

REGION VII

Specific Examples of Programs in Operation for Training Women

PLACE	For	COURSES (VE)
Mobile, Alabama	Army Air Corps Depot	Aircraft engine assembly and disassembly, aircraft sheet metal, propeller installation, machine shop practice, electrical systems, aircraft engine accessories
Mobile, Alabama	Ship Yards	Arc Welding
Memphis, Tennessee	Office Defense Transportation	Motor mechanic, lubrication specialist
Pensacola, Florida	Naval Air Station	Aircraft engines, sheet metal work, hydraulics and machine shop
Tampa, Florida	Shipbuilding Companies	Arc Welding, electricians, sheet metal workers
Charleston, S.C.	Charleston Navy Yard	Sheet metal work, machine ship, arc welding
Brunswick, Georgia	J.A.Jones Construction Company	Arc Welding
Atlanta, Georgia	Bell Aircraft Corpn.	Aircraft, sheet metal work, and machine shop
Macon, Georgia	J.A. Reynolds Corpn.	Ordnance plant work
Macon, Georgia	Army Air Corps Depot	Aircraft engine assembly and disassembly, aircraft sheet metal, electrical systems, propeller installation, aircraft assembly, machine shop practice, aircraft engine accessories

ATS - Advancing Work Plans

A number of women are being trained under an Advancing Worker Training Program formulated by the Apprentice-Training Service of the War Manpower Commission at the J. A. Jones Construction Company, Inc., Brunswick Ship Yard, Brunswick, Georgia. Instruction is given in the following crafts: welding, burning, weld-marking, lay-out, mold loft, shipfitting (small assemblies), sheet metal, tool room, machine shop, electric shop, and material checking.

A similar program is in operation at the Holfast Rubber Company, Ordnance Division, Atlanta, Georgia, where training is being given in ordnance plant work. Fully half of the workers in the Holfast plant are women.

REGION VIII

Northern Malleable Iron Company, St. Paul, Minnesota

Partially mechanized. The only foundry in St. Paul which is using women. At present employ 16 women in the following classifications: 4 coremakers; 5 coreroom laborers; 1 casting inspector; 1 grinder; 1 finisher (grinding and inspecting); 3 casting sorters; 1 laboratory assistant. Needs 24 men and 6 women; the latter to be used principally on finishing operations.

At the present time two courses are set up for foundry workers--one in General Foundry Practice and the other for coremakers. No women are enrolled in these courses at present but the growing interest in the use of women in foundries indicates that women will be receiving training in the very near future.

Twin Cities Ordnance Plant, New Brighton, Minnesota

Total number of employees 24,725, of which 13,097 or 52.8 per cent are women. This company has a full time training director and staff and besides having their employees take special ESMWT courses or courses in the vocational schools, they have been carrying on their own in-plant training program. The following breakdown of type of worker and percentage of men and women indicates the distribution of the women workers throughout the plant.

Type of Worker	Men	Women
Production Operators	23.4	76.6
Product Inspectors	31.5	68.5
Packers	43.5	56.5
Custodial Workers	46.3	53.7
Technicians	46.7	53.3
Clerical Workers	48.3	51.7

General Service Operators	83.7	16.3
Professional	87.5	12.5
Attendants and Material Handlers	93.6	6.4
Equipment Maintenance Workers	75.6	4.4
Managers and Supervisors	99.0	1.0
Machine Adjusters	100.0	0.0
Bldg. & Grounds Maintenance Workers	100.0	0.0
Protective Workers	100.0	0.0
General Service Laborers	100.0	0.0
Trainees	100.0	0.3

Minneapolis Honeywell Regulator Company, Minneapolis

At the present time this company's payroll includes approximately 60 per cent (4300) women in both of their Minneapolis plants. In individual departments, however, this percentage figure runs much higher--from 96 to 98 per cent. Special attention has been given to problems relating to the employment of women and are outlined as follows:

Special rest and sanitation facilities are provided for women in every part of the plant and conveniently near to each department. Health and eating facilities are designed to accommodate women. The cafeteria has been designed and decorated to be as cheerful and pleasing to women as possible. It plans its menus to include the types of food it has found women prefer; for instance, light meals, salads, sandwiches and similar foods not generally appealing to men. Every new employee is especially trained in the department for which she is selected. This training depends entirely upon the type of work to be done and therefore varies in each department. Until a month or so ago each new employee was given one day - her first with the company - in a special induction course. This covered such things as the history of the company, the type of work she would be doing, where the cafeteria is located, and other similar information designed to acquaint the new employee with a broad outline of their company, their jobs, and with the people with whom they were to work. At present the training program is undergoing a number of changes and for the time being, at least, this first day of general training has been dropped in favor of specialized, individual training within the various departments. Operations have been broken down to the simplest form so that each employee has to learn only one small part or operation in any given manufacturing or assembly operation. Training Within Industry Service has been very helpful in assisting in the training program. Training is being conducted at Miller Vocational High School, Dunwoody Institute and the University of Minnesota in Minneapolis. All new women employees receive on-the-job instruction by TWI instructors.

Through the ESMWT agency and the Vocational Education Division of the U. S. Office of Education training programs are being given, some of which are specifically pointed for the war industries. Courses

in engineering drawing, and tool and gage inspection are given through the ESMWT agency. The course in engineering drawing has been set up specially for Northwest Airlines and is training approximately 50 women. The course in tool and gage inspection has been set up for a number of firms such as the Twin Cities Ordnance Plant, Minneapolis Honeywell Regulator Company, and other war plants. A course in topographic map drafting, in which there are at present 13 women enrolled, is now being given, but trainees are also being trained for various war plants. Courses in iron ore analysis have been given and are now being given on the Iron Range to train women for laboratory work for the mining companies throughout the northern part of Minnesota. A course in the fundamentals of electrical machinery is being given for the Electric Machinery Company of Minneapolis and there are 21 women enrolled at present. A course in junior engineering is also taught by ESMWT. This course is given mainly upon request by the Civil Service Commission to train women for engineering jobs. This is supplementary training.

In addition to the courses outlined above, which are given through ESMWT, the following courses are given in the vocational schools. A complete training program has been set up for the Northwest Airlines under which women employees are trained in aircraft sheet metal work; aircraft; fine tool work for aircraft instrument repair. This training is both supplementary and preemployment. An average of about 250 are continually in training. In addition a course in gas welding for women is being conducted for Northwest Airlines. Women are being trained for aircraft wood work for one of the companies engaged in the manufacture of glider planes. Other courses are being given in electrical assembly work and testing for the training of women for D.W. Onan & Sons Company and also the Minneapolis Honeywell Regulator Company. A special course for training blind workers in sorting and testing has been set up by the State Department of Vocational Education. Two blind women were enrolled in this course and after receiving training are now working at D.W. Onan & Sons Company and the Northwest Airlines.

A paid training program has been established for the training of women workers for McQuay, Inc. Eleven girls are now taking training in arc welding, the training covering a period of 200 hours. Courses specially designed for women have been set up in gaging and inspection and also in general machine shop. Women are placed immediately upon completion of training. At the present time we cannot obtain sufficient women trainees to meet the demand.

REGION IX

Arkansas

In Arkansas women are enrolled in vocational classes of the following types:

1. Production, conservation, and processing of foods of farm families.

2. Drafting
3. Radio communications

4. Surveying and mapping
5. Welding
6. Aircraft mechanics
7. Tracing
8. Aircraft riveting
9. Machine tool operators

St. Louis, Mo.

An outstanding example of the favorable publicity given the job training of women is the two-weeks industrial display shown in one of the large department stores of St. Louis. This display is entitled "Women in War Work," and was housed in the auditorium of the store. It consisted of a "live" display in which women employees of the various industrial plants represented were actually engaged in machine and assembly operations. The women of St. Louis saw with their own eyes that war work is not difficult, that women can do this work, that other women were helping win the war in an eight-hour a day job, and that women were urgently needed by St. Louis war industries. Full cooperation by the department store and the manufacturers resulted in thousands of women applying for war work and being satisfactorily placed. This recruitment of women was materially aided by numerous full page advertisements in the St. Louis newspapers, 24-foot illustrated posters, and such radio broadcasts as "What is Your War Job"?, and interesting 30-minute program in which women workers from local war plants participated.

REGION X

Human Interest

During an interview with Mrs. Frances Brien on December 14, 1942, she stated that she had just returned from a trip to California visiting her husband, Mr. Earl Brien, 2nd Class Petty Officer, U.S.N. She stated that while she was there she realized just how serious this war is. Women dressed in overalls and work clothes, and going to work in war industries were entirely new to her. She had not seen such things in her home town. On the contrary, she was working in a ladies' ready-to-wear store selling lovely things to women whose husbands were employed on war jobs. She had not once given a thought to any kind of war work and did not realize just how much she could help the war effort by learning some war trade.

She was very anxious to learn just what courses were offered to women for war work. She was determined to do her part. She was advised of the courses offered and chose training in welding. She started training immediately in a VEND Training School. The welding instructor commented on her untiring determination, her keen interest, and her anxiety to finish. She was one of the best students he had trained because she was ambitious and wanted to learn. After six weeks training she was employed by Delta Shipyards, New Orleans, as a tack welder. In a short time she was promoted to 2nd class welder and earning as much in one week as she had previously earned in a month.

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Mrs. Brien is a petit brunette, a typical French girl, very pretty and intelligent. Her husband has been in four major naval battles and she stated that he was doing his share and she certainly wanted to do hers. She feels that she is fighting on the home front while he is at sea.

Mrs. Brien has moved to San Francisco to be near her husband. She hopes to be one of those California women going to work in overalls. She also hopes that she can inspire other women as she was inspired, to work for victory.

REGION XI

Programs for Training of Women

Continental Airlines will train about 900 women in the next 6 or 8 months for its Denver modification center, and beginning in July will pay trainees $124 a month.

The University of Colorado is giving as ESMWT drafting course to 200 women for Boeing, while Denver University is conducting a similar course for Consolidated Aircraft of San Diego.

The lumber country of northern Idaho is taking a significant step, although the number of women involved is comparatively small. Women are being hired in saw mills and planing mills and are being trained for the lighter jobs. Some are being taught to operate saws for a match block plant at Bovill, Idaho. The Forest Service hired school teachers and students for lookouts and for blister rust control this spring.

Human Interest

One widowed grandmother in Denver who had been working as companion to an elderly invalid decided she could do more for her country. She applied to the USES and was referred to Continental Airlines. They put her in their mechanics training class. She was embarrassed at the necessity of wearing slacks and at first walked to and from school by side streets rather than display herself on a street car. When she was given a badge which identified her as a war worker, however, she wore it and the slacks proudly. She has completed her course and is a mechanic's helper at the modification center, working on a night shift. It is hard work for a woman who has never done any manual labor, and it is a complete reversal of her former way of life, but she is proud and happy to be doing something for the war effort.

REGION XII

ESMWT - University of California

We wrote in January to two hundred girls who have been at work three to ten months. Ninety-one, or almost half of these busy women, were good enough to answer some detailed questions for us. Out of ninety-one, sixty seven have been promoted...that's 74 percent of the group...and we're even prouder to say that 32 of them....35 percent...have been

promoted two or more times. Only six are not working now..."moving away" or "have been ill", or as one cheery letter reports, "had a baby". Eighty per cent of the group are still with their original employer. These women like their jobs and stick to their work.

Salaries? The highest reported so far is over $4,000 a year and the lowest reported is $1,700, with most of the answers in the neighborhood of $2,400 after four or five months' work. But even more proudly reported than the payroll entries are the jobs being done....draftsman, junior tool designer, engineering aids, template maker, inspector, junior engineer, electrical draftsman, laboratory technician, and so on. These positions are the industrial counterpart of work done by non-commissioned officers in the Army, and just as essential to winning this war.

Human Interest - ESMWT - University of California

From Edmonton a girl who intended to be a teacher but who, after Pearl Harbor, took ESMWT training as a draftsman at the University of California, writes: "I am the only girl in an Engineering Department of 50 men. I am now classified as an Engineering Aide and I'm very, very happy not only because of my salary but because I am in the center of a scene as dramatic as the Gold Rush of '49 and as hectic as a train terminal at 5 o'clock. I am able to feel directly valuable to the war effort and most important of all, I have found the groove into which I fit."

General Summary

The trends as measured by studies in the schools in relation to programs conducted for specific shipyards, indicate that during the coming year the more progressive shipyards will increase their employment of women to approximately 35 per cent of the payroll.

Women are being accepted by practically all of the crafts.

In a study of absenteeism and turnover, we have found that there is a definite correlation between the length of training prior to employment and the stability of the employment of the workers.

Studies made by plants and the schools show that the longer the period of training, the longer the women stay on the job. The following reasons may be given in explanation:

1. Through training prior to assignment of work in the yard, the woman finds the kind of shipyard work that she is interested in and is capable of doing.

2. She gains a familiarity with the tools, the terminology, and shipyard procedure.

3. She develops an employable skill in which she is confident of her ability to compete with other workers.

4. She is given instruction in how to meet the various work situations which will confront a woman in a shipyard such as climbing ladders, working in high places, proper dress for safety and health, etc.

In one Bay Area yard, a study was made of 395 women who left the shipyards after working for five months or less. The reasons given for quitting the job, showed that the separations could have been avoided if the women had been given pre-employment training. In Oakland, the unions are requiring all women to take a minimum of 40 hours of training prior to placement in the yards; the amount of time required varies with the craft. In one shipyard in the Bay Area, none of the women who had pre-employment training quit during the first six weeks on the job.

A new development is the selection and assignment by shipyards of women craft supervisors. The woman craft supervisor handles the quarterman's responsibilities as they relate to the personnel management of women. All women craft supervisors are assuming some of the technical work of the quarterman's responsibility, in addition to his responsibility for personnel handling.

Another trend is for employers to accept women on a part-time basis operating short shifts of from two to six hours during the day. If the woman has an employable skill obtained through training, the employer is willing to make almost any kind of work adjustment to fit her into the production in his yard.

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WAR MANPOWER COMMISSION
Bureau of Manpower Utilization

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THE EMPLOYMENT OF WOMEN:
Facing Facts in the Utilization of Manpower

DIVISION OF OCCUPATIONAL ANALYSIS AND MANNING TABLES

June 1943

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FOREWORD

The Division of Occupational Analysis and Manning Tables, of the Bureau of Manpower Utilization, initiated a Manpower Analysis program in the late Fall of 1942.

The purpose of a Manpower Analysis is to present to the employer and to the War Manpower Commission a complete picture of the manpower problems within the plant in order to provide a factual basis for maximum utilization of workers' skills. Employers' participation in the program is entirely voluntary.

Manpower Analyses are plant studies made as a service to management by Occupational Analysts assigned to the War Manpower Commission's field offices. The first part of each study consists of a Manning Table, including a complete inventory of jobs in the plant, the training time required for each job, the number and sex of workers, the number of physically handicapped persons employed, the distribution of male employees by Selective Service Status, and the estimated future labor needs. The second part is an analysis of the labor utilization practices in the plant and the problems involved it, such as training, housing and transportation difficulties, turnover and absenteeism.

The greatest value of a Manpower Analysis is the assistance rendered to the establishment in which it is made. Responsibility for optimum labor utilization, and ability to promote and ensure it, rest with the individual employer. On the other hand, it is often possible to give him very real assistance through techniques about which he may not be informed, through a point of view not restricted to one plant or one industry, and, above all, by giving an impetus to his consideration of labor utilization problems. The Manpower Analyses have pointed out many of the actual reasons for failure to utilize women as a source of labor and have indicated some solutions to problems involved in the employment of additional women in plants, or their introduction to establishments that are using only men in the production departments. This information, amplified by research into recent publications, is made available in the following article so that the "know how" reported by one Analyst can be circularized among the persons who may be faced with similar problems.

THE EMPLOYMENT OF WOMEN:

FACING FACTS IN THE UTILIZATION OF MANPOWER

To increase the Armed Forces to the published estimate of 10.7 million in December 1943, approximately 4.1 million men who can meet military standards must be withdrawn from civilian life. Because of the curtailment of non-essential activities, some of these men will not have to be replaced in their former jobs. However, war industries need an increasing number of workers and the total of those engaged in agriculture must be maintained at least at present level. It has been estimated that during 1943, 2.7 million persons must be added to the number in the labor force and the Armed Services at the beginning of the year. Most of these 2.7 million persons will be women, largely housewives who are entering the labor market.

Although it is generally accepted that current and future labor demands can be met only through large scale employment of women, it is often difficult for individual management to relinquish traditional personnel policies. The employment of women in war industries is increasing daily, but their number still falls far short of the actual need for them if we are to attain the production volume required for global warfare.

Even after the decision is made to employ women, many questions remain and some problems arise which are difficult to meet with the rather limited experience and information available at the local level.

Certain facts seem to be clear from experience with the employment of women in this country:

Many firms have reported higher production by women in comparison with men on similar jobs.

The traditional idea of jobs "suitable" or "unsuitable" for women should be reconsidered in the light of the fact that women are known to be performing almost every type of job.

Separate or additional restroom facilities must be provided and some minor changes, such as raising benches, providing chairs and installing lifting or conveying devices are sometimes necessary before introducing women into many jobs.

Once women are employed in a plant, male employees generally have had little objection to additional women workers, and few of the disciplinary problems which some employers fear ever develop.

Although there is no new major problem brought into supervisory work in connection with supervising women, the phrase "more thoughtful supervision" seems to indicate what is needed in the handling of women who are new to industry.

General experience indicates that women have a better accident record than men, particularly if certain safety precautions are observed.

Damage to tools and materials is often less than when similar work is performed by men.

Turnover is reduced by the employment of women, although their absenteeism record in the past has been somewhat poorer than that of men.

Women already living in the vicinity of a plant constitute a source of additional workers without aggravating the housing shortage. However, the employment of the mothers of young children creates such problems that Mr. Paul V. McNutt, Chairman, War Manpower Commission, has stated . . . no woman responsible for the care of young children should be encouraged or compelled to seek employment which deprives her children of her essential care until after all other sources of labor supply have been exhausted."

Production Records

Even though the scope of occupational opportunity for women was formerly limited by traditional practices, those who were employed generally proved themselves to be capable workers. Recently better production records have been reported by many firms for women in comparison with men on those jobs which had been held only by men prior to the war. This, of course, may be attributed to several reasons, one of which is the possibility that only the best qualified women applicants have been accepted so far. Another element may be that when they are faced with prejudice, women regard it as a challenge to be overcome through superior work.

Jobs "Suitable" for Women

As women on the average have only a little over half a man's strength, physical requirements will affect the desirability of certain jobs for them, but it cannot be categorically stated that any particular occupation is absolutely unsuitable for women. United States Census figures for 1940, recent reports of placements of women, and the experience of England, Germany and Russia prove that women are actually performing an almost limitless number of jobs, many of which require considerable physical exertion. As in all careful placement work, it is a matter of selecting the proper worker for the job. Just as some men do fine needlework, there are many women who are too "heavy handed" to perform delicate manual tasks. Although the average male is stronger than the average female, there are many men of slight physique and many women whose strength equals that of the average man.

The average woman, being about 4" shorter than the average man, is frequently at a disadvantage when called upon to reach to heights above head-level. However, women 5'8" tall should have no difficulty filling any job requiring reaching suitable for the average man.

Manpower Analyses have pointed out that the bulk and weight of materials to be handled in certain jobs is one of the major reasons advanced by the employer for not employing women. However, there is such disparity between establishments in this factor that in a great number of cases it can be overcome by managerial initiative and ingenuity in job re-engineering. Hoists for raising weights to work level, conveyor belts, and other mechanical devices have been installed in many factories to aid the workers. Other plants have broken down jobs so that a strong laborer does all the

the heavy carrying and lifting for a group of women, leaving them free to give full time to the operation of their machines. The examples of jobs filled by women in the recently released "War-Time Employment of Women in the Iron and Steel Industry in Great Britain" throw considerable light on the arduous work that can be done by women and the usefulness of such minor technological changes in tasks as the substitution of smaller shovels.

Even when the weights to be lifted or carried on the job are not very heavy, the small amount of time needed to train women, or men, in proper methods will be well repaid by decreased fatigue and greater efficiency and safety.

The Women's Bureau of the Department of Labor recommends that weights be carried on the shoulder. Although this method is primarily intended to conserve strength and protect the worker's health it is particularly important that it be observed in going up or down stairs, or in any situation where a restricted range of vision might add to the accident hazard. To prevent undue abdominal strain in lifting objects the worker should stoop down by bending her knees and not her back, keep the feet close to the object to be raised, use a narrow stance, the feet approximately 8 to 12" apart, and put the brunt of strain on leg rather than back muscles.

One rather surprising fact disclosed by the Manpower Analyses was the number of males still employed in clerical occupations. Although clerical work is the obvious field for replacement of men by women, a tabulation of 22 studies* covering a total number of 63,314 workers shows that of the 4,490 employed in clerical occupations, 3,084 were men. Only 201 of these men were above the age of 45, which seems to indicate that a great many of the remaining number are eligible for military service.

A few of these clerical occupations are in production departments, necessitate lifting heavy parts, require considerable knowledge of shop operations, patterns, dies or castings, and in some cases have been stated to be unsuitable for women. The unsuitability of these jobs for women is particularly open to question as few of the jobs require a long training period, and the physical demands could be met by strong women or be decreased by having one laborer perform the heavy lifting if mechanical aids were either not obtainable or not feasible. In any case, it appears logical that able bodied men in clerical occupations could be transferred either to these jobs in plants or trained to perform machine or other production operations where physical requirements seem too high for the average women. It is also interesting to note that of the 3,084 men employed in clerical occupations in the plants covered by Manpower Analyses, only 33 were reported to have any type of handicap.

Plant Facilities

One of the reasons frequently mentioned for the unwillingness to employ women is the lack of restroom facilities and the difficulty in securing plumbing equipment because of material shortages and priorities. In some cases, of course, the difficulty is being exaggerated, as, if the plant plans to increase its labor force and does not

Several Manpower Analyses did not include administrative and clerical personnel in the Manning Table for the plant, and, therefore, are omitted from this tabulation.

have sufficient restrooms now, it will have to install or expand them, regardless of the sex of the workers to be employed.

The problem, when it actually exists, is most severe in old plants since the majority of new industrial buildings provide facilities for women. In many instances the difficulty can be overcome by minor alterations in physical layout, and this is the first possibility to be explored. Other plants faced with the same situation have made successful appeals to local real estate firms and property owners for sale or donations of such Secondhand fixtures as were exempt from War Production Board restrictions. In all cases the nearest field office of the War Production Board should be contacted immediately and the labor utilization implications explained. Since regulations concerning materials must necessarily change frequently, the various solutions can best be determined by "on the spot" cooperation with the agencies involved. It is urged that, if restroom facilities need to be improved or increased, action be taken immediately, as further delay will only increase the difficulty in securing materials.

State Laws

Federal and State laws prohibiting the employment of women in certain hazardous work affect a small percentage of occupations and must be given due consideration. A plant considering the employment of women should consult the Department of Labor representative during the initial planning period. As reported in Manpower Analyses, the Department can be of great assistance in clearing up misunderstandings on laws and indicating the minor equipment changes necessary to meet accepted standards.

The proper State Department should also be contacted concerning hours and shifts of work for women.

Union Membership

In the past, because of labor market conditions, some local unions discouraged the employment of women in closed shops. However, because of the present conditions and the expressed and demonstrated interest of unions in promoting war production and maximum labor utilization, this picture has changed, and contracts are being rewritten or amended. If an employer's use of women as a source of needed additional labor is impeded by a local union regulation, it is probably possible to secure the union's cooperation after the need has been explained.

Prejudice of Other Workers

Another factor which has appeared in a sufficient number of studies to become significant is that, although top management favors the introduction of women, foremen and other workers are opposed to it. It is logical to some extent that this would be true. The foremen are immediately affected by the employment of women and the personnel and training problems which arise in the initiation period, whereas top management is primarily concerned with meeting production schedules and, in so far as possible, without disturbing employer-employee relations, using all sources of labor to accomplish this aim. Also, it is natural that a foreman concerned with only one department would find it more difficult to grasp a problem in its widest aspect, as a component in the over all labor picture.

Management publications, in particular, have paid considerable attention to this problem and emphasize that it is necessary to secure the wholehearted cooperation and support of foremen, key men and machine operators by having them understand the reasons for the change. Much of the opposition voiced by male workers to the employment of women is merely the repetition of a traditional sentiment. In most cases the objection will disappear when the necessity for increased production, the shortage of labor, the ever expanding needs for war materiel, are explained. Enthusiastic championing of the cause by top officials and the plant labor-management committee will soon have its effect. If the men understand that they are not being displaced but are being freed for more essential contributions to the war, for work which cannot be done by anyone else, it is probable that the point of view of the higher officials will be adopted by the mass of employed personnel.

Here again a small amount of time spent in preparation will pay remarkable dividends. Much of the foremen's opposition is based on fear of the problems they will be faced with, including the idea that they will have to make machine workers out of women who traditionally are thought to be lacking in "mechanical aptitude". Personnel experts point out that there is very little difference between male and female applicants in true mechanical aptitude. It should be explained to foremen that the difference is not one of ability but rather of experience in handling tools, machine knowledge or familiarity, which can be overcome in a short pre-employment training period and is counterbalanced by women's eagerness to learn.

Training Women Workers

Manpower Analyses indicate that in some areas there is an insufficient supply of women trainees and that employers are failing to take full advantage of the vocational training facilities available to them.

In the few cases where dissatisfaction has been expressed with the vocational trainees hired, it is learned that there has been poor correlation of the training course with the work to be done on the job. Lack of active cooperation at the local level between employers, the U. S. Employment Service and vocational education authorities is largely responsible for these isolated failures.

In some communities the vocational education opportunities for women have been restricted because, with limited time and space, the schools had to train first the workers most acceptable to employers. When an employer makes his demands known to the U. S. Employment Service and the vocational authorities, there will be an incentive and a purpose in training more women. It is interesting to note that the Manufacturers Association of Connecticut, in advocating the cooperation of employers with local vocational education agencies, stated in June 1942, "State Vocational Schools will literally train employees to your order."

Besides teaching them to perform on the job, pre-employment and pre-production training for women results in the following benefits: It breaks the shock of change from home life to industrial work; reduces the fright reaction to noise, dirt, speed and danger of machinery in motion; saves shop training time; effects economy of materials; and reduces danger of injury to new operators and other employees. The school will maintain the interest of women volunteers while they are waiting for a place in production, and sift out those who are unsuitable for the job. In addition,

there is substantial evidence to indicate that training reduces labor turnover.

As women normally have little if any experience in handling tools, it is necessary that their training be started on a more elementary level, and that careful supervision be given them at the beginning of their training. Although all inexperienced workers benefit from a planned training program, it is particularly important that women receive a pre-employment or pre-production course, which will give them the elementary knowledge the average man has acquired as a boy, even before he had any industrial experience. A specially selected person who can understand and be sympathetic to women's problems in their unfamiliarity with tools, mechanical devices, shop terms and practice, should teach women during their initiation period. So much of a woman's future adjustment to the work situation depends on this early training period and her initial contacts with the machine and the plant, that the idea of "more thoughtful supervision" cannot be overemphasized.

Current experience is proving that although women entering machine operation fields may begin with this handicap, they learn rapidly and can soon catch up with the men in the class. Some companies are reporting that the over-all training time for women is actually shorter than that required for men on the same operations.

Particularly because the feeling has existed that women are lacking in mechanical ability and the majority of the women now entering the market have little if any work experience, aptitude tests, such as those offered by the U. S. Employment Service of the War Manpower Commission, will be of great aid in proper selection of workers to be trained.

Women Foremen or Supervisors

There is at present quite a wide divergence of opinion on the desirability of having women in industrial departments and machine shops to supervise other women, or both men and women. Since many women are successfully filling responsible positions in production departments as supervisors, foremen, sub-foremen and leaders, this is again not a question of the "suitability" of women for supervisory work, but of proper selection of the individual. Whether or not a plant develops women foremen will depend largely on the training it can give and the speed of its upgrading program.

One point of particular importance on which employers agree is that when a woman is assigned supervisory duties, she should be given the full complement of authority and responsibility of the job and her position must be made clear to the workers under her supervision. Otherwise it is likely that they will by-pass her and take their problems to and expect to receive their orders from a man who they feel has more authority.

A woman leader or foreman may have to meet more exacting standards of ability, leadership and fairness than a man filling the same position as many workers are more critical of a female than a male supervisor.

The Personnel Department and Women Workers

There is some disagreement on the question of whether or not women applicants should be interviewed by women personnel workers. This is the rule in England, both in the Employment Exchanges and in individual establishments, and is agreed to by many plant officials and personnel experts in this country. Others believe the opposite, or that either a man or woman is equally suitable. Again it would seem that the sex of a personnel worker is not so much the criterion as his or her interviewing ability. However, a woman interviewer, because of her first-hand familiarity with the problems of the woman worker, can in many cases get a more complete picture of those elements in an applicant's personal background which affect her attendance and performance on the job, and a better selection may result.

Experience indicates the advisability of having at least one person in the plant, as personnel official or women's counselor, to whom the women workers can take their special problems and difficulties, even if these matters are not directly related to the work. Particularly because some of the problems are personal in nature, it is preferable to have a woman in this position, and the Women's Bureau of the U. S. Department of Labor further points out that she should have both personnel and industrial training. Great care should be exercised in her selection as she must be capable of appreciating the worker's difficulties and of interpreting the plant's policies to them.

Safety Records

Some employers have been reluctant to hire women because of the hazards in machine and other industrial operations. However, records seem to indicate that the accident rate of women is lower than that of men.

Pre-employment training of new workers can do much to reduce the danger of injuries, and instructions in safety methods, particularly in proper techniques of lifting and carrying weights if such tasks are involved in the job, should be given to all new workers, regardless of sex. In many establishments special attention should be paid to work clothes and shoes.

Women's traditional clothes, style of hair, and shoes are not suited to many industrial occupations. It is important that protective clothing, when it is needed, be designed to meet individual plant and job conditions.

Whether safety clothing has to be worn because of the nature of the job, or the plant prefers a uniform for the sake of neatness and general appearance, it is desirable to consult the women workers themselves, or at least to ask women's advice when choosing styles. The uniform selected should be as attractive as possible, for, otherwise, some women will seriously object to wearing it. To a woman on her first job, when she has never seen an industrial accident, its possible tragedy seems very remote from the immediate unpleasantness of having to wear an unbecoming cap.

A company requiring the wearing of a particular type of clothing will make the enforcement of its policy much easier if the reasons for wearing the clothes, as well as for other safety regulations, are explained to each new worker and a clear and firm

stand is taken before the worker is hired.

Damage to Tools and Materials

General experience seems to indicate that in the case of women workers, damage to tools and materials is considerably less than when similar work is performed by men. This is particularly true where women are operating small machines, using small parts or handling delicate mechanisms. The reason is perhaps found in women's habit of handling breakable objects with care in their regular housekeeping duties.

Turnover

There are no periodic statistics on turnover for men and women separately. Comments from employers in general add up to "low", "negligible" or "inappreciable" for women, but "high" for men. In the isolated reports of high turnover for women, the reasons given are lack of facilities for child care, transportation difficulties, low wages in comparison with neighboring plants, and so on.

One reason for the lower turnover rate of women is that women are not subject to military draft. This is only one of the factors involved. Another of the causes is the fact that in many areas employment opportunities for women are still limited to the extent that there is little incentive to "shop around" for a better job as many male workers are doing. However, it is the opinion of many authorities that if women are able to make satisfactory home arrangements, they are generally more stable in job tenure than men.

Since labor turnover is one of the most distressing problems affecting American production, a lowered rate, whatever the reasons for it may be, is a great economic asset to a plant.

Upgrading and Motivation

It is too often forgotten that workers are affected by and respond to incentives other than increased wages. Opportunity for upgrading may be just as important an incentive as immediate monetary gain. Although much has been written about women's ability to do monotonous work, this should not be considered as a limitation or accepted as true for all women or for all levels of intelligence and initiative. Ambition and the desire for self-improvement, for greater responsibility and more interesting work are present among women, just as in men. Increasing numbers of women are beginning to accept the concept that they will have to earn a living for the length of their productive years, and to desire and plan for advancement at whatever occupational level it may be. War casualties will leave a number of women in the position of having to support themselves and their families.

Many women, particularly those who had worked before the present emergency, have so often been made to feel that their occupational and promotional horizon was limited by forces beyond their control, have so frequently worked at unequal wages and with less recognition in the way of title and authority than men performing the same work, that they not only are most eager for but respond to a surprising degree to any promotional opportunities given them.

A program of supplementary training, of worker observation to note individual skills and unusual aptitudes, and of upgrading whenever possible, should be part of any personnel planning and action. However, in many cases it has been limited to the male working force. This type of program is even more important when women are employed in a plant formerly staffed entirely by men, as the women present a new and untried group of workers, whose ability has not been demonstrated through past accomplishment, and who, because of varying aptitudes, may develop at unequal rates of speed.

The knowledge that upgrading possibilities exist will have a great motivating effect. Of course, this cannot be a promise unfounded in fact, as the resulting disillusion is one of the worst detriments to morale that can exist, and the program should be carried out with all the energy with which it was planned.

In planning an upgrading program, employers may find it helpful to use the Job Families developed by the Division of Occupational Analysis and Manning Tables, of the War Manpower Commission.

Absenteeism

Although men's absences have increased recently, in some cases to the extent that there is little differences between the sexes in this respect, the normal absenteeism rate for women has been somewhat higher than for men, not only in this country but also in England and Germany. However, the courses of action to meet the problem are more clear cut in the case of women. When women are absent from work, there is usually some pressing reason, such as illness or home duties.

Much absenteeism can be averted by a careful interview before a worker is hired to determine her home status and to assist her in making any necessary arrangements. A systematic but understanding follow up should be made to determine and, if possible, take steps to remedy the specific causes for absences.

The methods employed to discourage absenteeism among men, such as patriotic posters, attendance bonuses, etc., will have their effect on the female working force, but additional problems must be taken into consideration.

Several studies have shown that women are ill more frequently than men. A survey by the National Institute of Health in the winter of 1935 to 1936 included a study of the disability of some 280,000 white persons in 8 cities. Approximately 34,000 of these were white women workers 15 years old or over. The rate of illness of women 15 to 64 years of age was about 28 per 1,000 in contrast to 22 for male workers. Women experienced a higher sickness rate than men in each age group. The Boston Edison Company in analyzing all disabilities of 1 day or longer occurring in the 5-year period 1933 to 1937 found that male employees lost an average of 6.4 days a year because of illness; female employees an average of 9.9 days.

This higher illness rate, which is one of the main reasons for women's absenteeism, adds further emphasis to the importance of health conditions in the plant. Properly spaced rest periods, which are also beneficial for men, greatly reduce fatigue, improve production and safeguard the workers' health. A well equipped first-aid or emergency room is essential, and should include a cot or bed.

Nutrition is such an important health factor that the eating facilities for workers should receive special attention. Workers should be able to secure nourishing meals at reasonable cost, and within close distance to their work stations. Education in the selection of foods is also advisable, as, where workers are permitted a choice, they often buy more soft drinks than nutritious food.

Home responsibilities are generally recognized to be the second major reason for the higher absenteeism rate of women. No matter how intense a woman's interest in her job may be, her children must be cared for, the work of running a home falls on her, and she must have time for shopping. Both the woman's peace of mind, with the resulting improvement of quality and quantity of work, and her attendance on the job will be greatly improved if the problem is considered and steps are taken for its improvement both by the employer and the community.

The employer's main contribution will be in planning hours and shifts of work with the women's point of view in mind, and in placing individual women on the shifts most suitable for their requirements. It is generally accepted that night work is highly undesirable for women. However, when women have to be used on second or third shifts, some employers have adopted the practice of rotating shifts to distribute the burden of night work and equalize employment conditions. The concensus of health and labor authorities is that shifts should not be changed as often as 2 or 3 weeks, nor at intervals so long as to develop chronic fatigue of the night worker. The most desirable frequency will depend to a degree on plant conditions, and all possible measures should be taken to protect the workers' health when night work is necessary.

However, the wartime employment of women, particularly of housewives with small children, creates problems which cannot be successfully attacked from only one angle or by a single group. The best results have been achieved when all elements in the community have cooperated and worked together.

Not only as a factor in absenteeism but also from the broader point of view of individual and community welfare, the care of small children is the most important home duty of any working mother. The Office of Community War Services and other governmental agencies, and welfare, church, social, service and trade union organizations have rendered great service in this field by opening and expanding day nurseries, kindergartens, and after school play centers.

Many of these organizations have also been instrumental in providing recreational facilities for women workers. The lack of opportunity for normal relaxation and social activity is definitely related to the discontent and absenteeism of many workers. The problem is specially acute in the case of night shift workers.

In order that working women may be able to shop without taking time off from work, Merchants Associations in many towns and cities have agreed to change shopping hours so that stores remain open at least one night a week. Similarily doctors, dentists, lawyers, banks, and beauty parlors have cooperated by changing business hours to accommodate industrial workers.

However, in many communities, particularly those which war production has turned into boom centers, the inadequacy of community services and facilities is a very real cause for dissatisfaction and absenteeism. Although this has not been generally

accepted as being an employer responsibility, the influential industrialist can do much by pointing out the needs and marshalling the community resources into action.

. . . . . .

In many areas, because the local labor market has been literally drained of men and the housing situation prohibits the importation of additional persons, the question of whether or not to employ women has become academic. Women constitute the main supply of labor in these communities. In other areas, where the labor shortage is not so severe, there is still some choice in the sex of workers to be hired, but the employment of well qualified women should be urged as part of a foresighted, long range labor utilization program.

The problems involved in the employment of women are neither as numerous nor as complicated as they are traditionally thought to be. The experience of the majority of plants has been that women generally are highly satisfactory workers, and that they bring an enthusiasm and an eagerness to learn which contribute greatly to the morale of the entire working force.

This seems to be the field in labor relations in which the greatest results can be achieved with the least effort, but this effort to be most effective should take the form of intelligent and energetic planning from the very beginning, preferably before any women are employed. This report has attempted to present the various aspects of the major questions involved in the belief that this type of approach may assist analysts, personnel workers, and employers in the constructive planning which must be done at the local level to meet each individual plant's situation.

The recruitment of women workers presents problems of a somewhat different nature and has not been incorporated in this statement. However, here again, the great need is for effective planning based on an understanding of the group to which the appeal is addressed.

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April 10, 1944

Mr. C. L. Shartle, Chief
Division of Occupational Analysis and
Manning Tables
War Manpower Commission
Washington, D. C.

My dear Mr. Shartle:

We acknowledge receipt of one copy of the second edition of the Supplement to the Dictionary of Occupational Titles. Your material on Occupational Titles has been very helpful to us in the past and we are sure it will continue to be so in the future.

Sincerely yours,

Mary Anderson, Director

BMN:LW

ADVANCE RELEASE: For SUNDAY Papers, May 16, 1943
ORR-WMC--2037

ADVANCE RELEASE

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION PM-4382

Enrollment of women high school graduates in summer courses for engineering, science, management, and war training in more than one thousand towns and cities is expected to result in furnishing war industry before the end of the year with at least 100,000 trained workers, Chairman Paul V. McNutt of the War Manpower Commission announced today.

Of the approximately two million additional women who it is estimated will be needed for war work this year, probably 200,000 will be up-graded, according to ability, to supervisory or technical positions, Mr. McNutt pointed out. Women who have availed themselves of these courses should be able to qualify for many of the better-paid jobs, he added.

Citing data received from Dr. W. W. Charters, Director of the War Manpower Commission's Bureau of Training, Mr. McNutt said that the 30,000 women now enrolled for the 10-16 weeks tuition-free training courses popularly known as ESMWT courses, are learning engineering drawing, precision inspection, the chemistry of explosives, map-making, and similar techniques. Summer courses are to be given, in many instances, as day-courses running six to eight hours daily for ten to sixteen weeks.

ESMWT courses in a particular locality are related directly to the college-level training needs of local industries, Mr. McNutt added. Thus, in proximity to an aircraft plant, one may expect courses in aircraft stress analysis; near shipyards, courses in ship lofting; near steel mills, metallurgical courses.

Typical of the types of ESMWT courses which train women to serve various industries are the following:

Communications Industries

Engineering Aid (Radio)
Inspection of Naval Materiels (communication equipment)
Principles of Radio
Pre-Electronic Instructor Training for Women

Shipbuilding Industries

Ship Machinery for Women
Ship Piping Layout for Women
Hull Ship Construction for Women

Aircraft Industries

Aircraft Materials inspection for Women
Airplane Drafting for Women
Elements of Machine Design for Women
Elements of Engineering for Women

X-15189

Ordnance Manufacturing Industries

Ordnance Inspection for Women
Ordnance Engineering Aids
Ballistics Engineering
Ordnance Safety
Elements of Ordnance Machine Design

Explosives Manufacturing Industries

Chemistry of Smokeless Powder
Chemical Properties of Explosives
Fundamentals of Explosives Manufacture

Chemical Industries

Chemical Testing & Inspection
Quantitative Chemical Techniques for Women
Practical Chemical Analysis for Women
Introductory Organic Chemistry
Food Dehydration Techniques

Mining & Metallurgical Industries (Steel, Aluminum, etc.)

Elementary Metallurgy
Physical Metallurgy
Chemistry of Metals
Metallurgical Techniques for Women
Metallographic Laboratory Practice for Women

The Rubber Industry

Elements of Synthetic Rubber Manufacture
Synthetic Rubber From Petroleum
Petroleum Chemistry Including Butadiene
Modern Rubber Technology & Practice

The Petroleum Industry

Petroleum Refinery Engineering
Testing of Petroleum Products
Chemical Technology for Petroleum
Petroleum Engineering

The Army Mapping Program (Civil Service)

Military Map Making
Use of Surveying Instruments and Surveying Field Procedure
Photogrammetry and Interpretation of Aerial Photographs

Activities that Occur Widely Throughout Many Industries

Accounting
Elements of Engineering
Elements of Machine Design
Industrial Drafting
Inspection Practices
Office Supervision
Personnel Administration
Safety Engineering

The ESMWT courses, the Chairman pointed out, are offered under various plans. Employers may request "in-service" courses, for instance, in which their employees may be trained on company time or after hours for upgrading to positions of greater responsibility.

Pre-employment courses may be offered for qualified persons seeking to prepare for their first technical job in war industry.

Part-time courses which operate outside working hours for employed persons may be organized--running perhaps for six or more hours per week.

Full-time courses may meet during the daytime on a forty or more hour per week schedule.

Of recent ESMWT enrollments, Mr. McNutt said, about 66 per cent were persons employed in war industries while in training. Nearly 6 per cent were being paid by employers while attending classes which absorbed their full attention. An additional 20 per cent of the trainees were employed, but not in war industries--were preparing to shift to more essential activities. Only about 8 per cent were unemployed.

Women high school graduates with aptitude for mathematics are particularly desired for the courses, the Chairman said. College-trained women and those with credits for physics or chemistry are even more acceptable.

Applications for entering ESMWT courses, it was explained, are received at the major colleges and universities in every state, and the U. S. Office of Education will send upon request, a list of institutions where the courses are given both on the campus and through extension facilities.

ADVANCE RELEASE

Man Power Com.
Miss Newburgh

ADVANCE RELEASE: For SUNDAY Papers, May 23, 1943
ORR--WMC--2037

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION PM-4383

Experienced professional and technical men and women in critical fields are assured of all-round placement services when they register with local United States Employment Service offices, Paul V. McNutt, Chairman, War Manpower Commission, said today.

A careful cooperative procedure between the National Roster of Scientific and Specialized Personnel, of the WMC Bureau of Placement, and all local offices of the Employment Service, has been placed in operation, Mr. McNutt said.

The names of registrants, together with information regarding each applicant's availability, are now immediately sent to the National Roster in the event they cannot be placed immediately by the local employment office. Further correspondence may be conducted from the Washington headquarters of the Roster. In this way, it is believed, the qualifications of additional thousands of persons with specifically needed abilities will be entered on the Roster's punchcard system, and important war jobs may be more easily filled.

Orders from employers for scientific and specialized personnel which cannot be filled locally by a local USES office, are forwarded to the headquarters of the National Roster at the time a State Administrative Office of the Bureau of Placement grants State-wide clearance of the local office order.

If the Roster has on its lists names of men and women who meet the qualifications demanded by the local office order, the registration papers are immediately sent to the local offices which received the order. The registrants' availability for new assignments will be noted on these papers whenever possible. Since these registration papers are confidential, employers will be asked not to make notes on the information which may come to their attention as the papers are examined.

The United States Employment Service will handle any necessary negotiations with any employer for releasing a scientifically or technically trained man or woman from present employment to fill a job more important from the standpoint of winning the war.

The National Roster, is now conducting an intensive recheck of some of its registrants in the more critical fields to determine their availability for jobs other than those they now hold, and the conditions under which other employment would be acceptable. The local offices of the United States Employment Service will assist the Roster in contacting individuals personally on these points whenever necessary, Mr. McNutt added. Local Employment offices will also contact Roster registrants in their areas in connection with specific openings which the Roster is trying to fill.

A follow-up system has been instituted by the Roster, so that as names of qualified candidates are submitted to an employer, the Roster is notified of placement results. The new arrangements with local employment offices and State Administrative Offices of the Bureau of Placement will aid in keeping this information up-to-date and complete, Mr. McNutt said.

Orders for scientific and specialized personnel sometimes border on the unique. For example, an order for a production manager in a St. Louis small arms and ammunition plant--salary $8,000 to $9,000--specified that the man be 40-55 years of age, an engineering graduate or possessing equivalent engineering experience, with high intelligence rating, character, judgement..."must have background of toolroom and machine shop supervision, and know current practice in tool, die, and gage production...must be used to supervision of large numbers of both male and female employees and be good disciplinarian..should have recent experience in an industry where production demands close tolerances and excellent finish on highly repetitive operations..applicants who are within draft age and have no dependents or justification for deferment should not be referred..4F status not acceptable..."

In this instance the Roster was able to give the names and addresses of eight men meeting the specifications, one of whom was selected for the job.

In another instance a geologist was needed to head a geological field survey in Eastern Venezuela. The specifications submitted by the employer read as follows:

"Man must have knowledge of regional geology of the Llanos area of Eastern Venezuela; must be familiar with special physical problems of tropical operations; must have working knowledge of the Spanish language. Physical conditions require an extremely able-bodied, rugged individual, of even disposition, calm temperament, with the faculty of remaining for long periods in primitive areas where recreational and social facilities do not exist. The salary is $325 a month plus maintenance. The term is for two years."

From 12 resumes submitted by the National Roster to the company seeking a geologist for work in Venezuela, two candidates were selected for personal interviews. It is expected that one of the two will be selected for the job. Both Roster registrants, incidentally, happen to be residents of San Antonio, Texas.

An important aircraft corporation in Connecticut had almost despaired of finding an expert to head up a department which would develop, operate, and maintain electronic equipment for measuring dynamic strains and deflections of airplanes during tests and actual flying. Finally an appeal to the Roster was made. Result: five qualified men were brought to the attention of the Corporation. If it is deemed in the national interest for these men to leave the jobs where they are now employed to undertake the new assignments, it is probable that the corporation will hire all five.

The occupational fields in which local employment offices will cooperate with the Roster on registration and placement are as follows:

Accountants and Auditors
Architects
Historian
Historical-Research Assistant
Chemists, Assayers, and Metallurgists
Engineers, Chemical
Engineers, Electrical
Engineers, Civil
Engineers, Industrial
Engineers, Mechanical
Engineers, Mining
Statisticians
Forest Supervisors
Economist
Economic-Research Assistant
Psychologist
Sociologist
Biologist
Bacteriologist
Geologist
Paleontologist
Astronomer
Physicist (include Geophysicist)
Meteorologist
Oceanographer
Acoustician
Seismologist
Horticulturist
Zoologist
Manager, Employment
Manager, Personnel
Managers, Industrial Organization
Managers, Production

Roster registrations to date have reached the total of 400,000, exclusive of physicians, dentists, and veterinarians. Registrations still to be obtained probably number over a half-million, Mr. McNutt estimated.

WMC - TRAINING MATERIALS

Manpower Comm
Manpower Comm
Training

JOB INSTRUCTOR TRAINING

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one of the services made available to all war production contractors and sub-contractors by ***TRAINING WITHIN INDUSTRY*** *of the* ***WAR MANPOWER COMMISSION***



This is a plan that puts into effect the procedure outlined by the Training within Industry Bulletin 2-C entitled, "HOW TO INSTRUCT A MAN ON THE JOB."

It is specially prepared to help all those who instruct workers on the job -- group leaders, sub-foremen, lead men, job setters, experienced workers. It is useful to all who direct the work of others -- from foremen to works manager.

Who originated it

The principles of job instruction set forth in the Plan have been used in American industry for 25 years. They were first tried out during World War I.

The present condensed Plan was worked out by a group of the nation's leaders in industrial training, loaned by their companies to the War Manpower Commission for this purpose, along with Federal and State representatives for Vocational Education.

How it operates

The training is given in 5 two-hour sessions, at any periods convenient to the companies and those who attend. It can be given at any time, day or night, on any days, Sunday included.

How many in groups

Best results are obtained with groups of 12. With groups composed of more than 12, there is not sufficient time for actual individual practice. This Plan is not a discussion of theory but a plan where participants spend most of their time actually DOING the instructing job.

Who will conduct the sessions

The 5 two-hour sessions will, in most cases, be lead by experienced industrial men, serving part time, who have been specially trained to do this job. The quality of the work of these "War Production Trainers" is kept at a high standard through supervision from headquarters.

What does it cost

This training is given without cost to all companies holding war production contracts or sub contracts. The trainers receive a modest hourly compensation out of Federal funds, administered by the State Vocational Board.

How to get started

All that is necessary to get started is to notify the District Representative of Training within Industry, or one of the District Representative's Training Consultants.

A schedule supervisor will call promptly to meet with the Plant Superintendent, Personnel Manager or some designated person, to complete all arrangements for the first group, and subsequent groups.

TRAINING WITHIN INDUSTRY

WAR MANPOWER COMMISSION
Bulletin #2-C

Washington, D. C. May, 1942

HOW TO INSTRUCT A MAN ON THE JOB

You are about to instruct a man how to do his job. This is very important to the man - and to you - and to national war production.

Perhaps the man has been with you for years. Perhaps he has been transferred to you. Or maybe he is green - starting his first job. Or perhaps he has had long experience in a non-defense industry and is starting his new work on war production.

Here are some ideas that may help you. They were worked out by others, just like yourself, who had the same job to do. Study them. Use them. They are easy to follow.

C. R. Dooley, Director
Training within Industry

What You Want to Do.

Go back in your own memory. Remember how you felt the first day on a new job? - the time you were"stumped"by a new"wrinkle"on the job? - the time when you caused some scrap or re-work? - the time you got hurt? - the times when the boss corrected you and your work? Perhaps you liked the way he did it - or perhaps - you didn't?

Any worker assigned to you feels the same way. He wants to make a good showing. You realize this. You are interested in four things:

1. Having the new worker come up to the quality and quantity requirements of production as quickly as possible.

2. Avoiding accidents which will injure the worker.

3. Avoiding damage to machines or equipment.

4. Spoiling as little work as possible.

How You Can Do It.

Most of us just "jump right in" and start instructing or correcting a workman without much thought or planning. Perhaps you do the same.

- you know the job so well that you've forgotten the things that "stump" the learner

- you know it so well, that you don't plan how to "put it over"

- you know it so well that you don't pick out the "key points" - the "knacks" - the things that make or break the operation

To instruct a man right takes just a little extra time at the moment, but it saves hours and days of time later on, and prevents a large part of the scrap, spoiled work and accidents. The following plan is simple and easy to follow. Furthermore, it works.

- before instructing, there are four GET READY points for you to watch. You can do them in a few minutes.

- when instructing there are FOUR BASIC STEPS to follow. They really are no different than what you may now be doing. But they help you do it well and thoroughly. At least they have helped thousands of others.

HOW to GET READY to Instruct.

Here are the four GET READY points you should take care of before instructing:

1. Have a time table.
   - how much skill do you want the man to have?
   - how soon?

   When faced with a "breaking in" problem, don't say what all too many of us say - "IT TAKES TIME - - -", or "HE JUST HAS TO LEARN".

   Say to yourself instead: "HOW MUCH TIME - - -?"

   Here is an easy way to do it. Answer to yourself this statement: "(employee) should be able to (do what job) and do it (how well) by (what date)."

   Better yet, put down the names of your men on a piece of paper. Set yourself some dates when you are going to try to have them able to do the jobs they need to know. Time is short. Have a time table for yourself and your men.

2. Break down the job.

   You know that there is one right way to do every job. You know too that there are a few "key points" in every operation that make or break it. If these key things are done right, the whole operation is right. If any one of them is missed the operation is wrong.

   - if you put the job over to the worker with these key points made clear, he will really "get it".

   - he will do the operation right the first time.

   - He won't be "fighting" the work - making mistakes - getting hurt.

   There is an easy, quick way to get the job clearly outlined in your mind. Fill out a "Breakdown Sheet", (sample enclosed)

for each of your operations. It only takes three to five minutes. This is for your own use. It is not to be given to the worker.

3. Have everything ready,

- the right tools, equipment and materials.

When you so much as "touch" a job in front of a worker, set the correct example. Don't use the wrong tool. Don't fumble. Don't excuse. Don't miss a trick. When you have everything right, he is more likely to do the same.

4. Have the work place properly arranged,

- just as the worker is expected to keep it.

The same thing applies here as above. You must set the correct example. Put his bench, desk, stock pile or wherever he is to work, in proper order, before you start to put over the job to him. He won't do it if you don't do it.

HOW TO INSTRUCT.

Here is what you should do every time you instruct a man or correct his work:

STEP I. PREPARE the worker to receive the instruction.

- put him at ease. Remember he can't think straight if you make him embarrassed or scared.

- find out what he already knows about this job. Don't tell him things he already knows. Start in where his knowledge ends.

- get him interested. Relate his job or operation to the final product, so he knows his work is important.

- put him in the right position. Don't have him see the job backwards or from any other angle than that from which he will work.

STEP II. PRESENT the operation.

-tell him, show him, illustrate, ask.

-"put it over" in small "doses". He (the same as all of us) can't catch but six or eight new ideas at one time and really understand them,

-make the "key points" clear. These will make or break the operation - maybe make or break him.

- be patient - and go slowly. Get accuracy now - speed later.

- repeat the job and the explanation if necessary.

STEP III. TRY OUT his performance.

- have him do the job, but watch him.

- then have him do it again, but have him EXPLAIN to YOU what he is doing and why. All of us find it easy to observe motions and not really understand what we are doing. YOU want him to UNDERSTAND.

- have him explain the key points.

- correct his errors, but don't bawl him out or indicate that he is "thick" or "dumb".

- continue doing all this until YOU know HE knows. He may have to do the job half a dozen times.

STEP IV. FOLLOW-UP.

- put him on his own. He has to "get the feel" of the job by doing it himself.

- tell him to whom he should go if he needs help. make this definite - yourself or someone you designate. The wrong person might give him a "bum steer".

- check him frequently - perhaps every few minutes at the start, to every few hours or few days later on. Be on the lookout for any incorrect or unnecessary moves. Be careful about your taking over the job soon, or too often. Don't take it over at all if you can point out the helps he needs.

- get him to look for key points as he progresses.

- taper off this extra coaching until he is able to work under normal supervision.

Use this plan. You will find it amazing that such greatly improved results can come from such a simple plan.

Use it, or whatever part of it applies, every time to put over a new operation, check a man's work, or change a work procedure.

IF THE WORKER HASN'T LEARNED, THE INSTRUCTOR HASN'T TAUGHT!

What it is designed to accomplish

Typical problems in war production plants which the Plan has helped solve.

Production problems

Deliveries delayed because of errors and mistakes of men making the parts.
Men don't know their jobs.
Mix-ups in trucking service.
Parts returned by other departments because they were not made right.
Operators have special problems because of engineering changes.
Poor planning.
Men have difficulty in getting up to production on new type equipment.
Aisles too congested.
Excessive wear and tear on equipment.

Safety problems

Safety equipment not properly used.
Material not piled properly.
Poor shop housekeeping.
Don't know safety rules.
Men don't know hazards of their jobs.
Men get careless.
Minor injuries not reported.

Quality problems

Meeting inspection standards.
Too much scrap or re-work.
Jigs and gauges not properly used.
Not following specifications.
Too much left to operator's judgment.

Personnel problems

Men leave to other plants - couldn't "get the hang" of the job.
New men lack experience in mechanical things.
Lack interest in the work.
Men want transfers - think they can "make out" better on other jobs.
Claim to have good experience but don't "come through!"
Too much time to get up to production.
Instructed wrong way.
Can't get experienced men any more.
Men get discouraged learning the job.

Most managers say that somewhere around 80% of their shop problems could be solved -- or at least HELPED *-- if they had a better trained work force.*

How About Yours?

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY

District Offices

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Atlanta, Ga., Georgia School of Technology, 225 North Ave., NW. (Hemlock 6890)

Baltimore, Md., Room 3106, Baltimore Trust Bldg. (Plaza 7460)

Boston, Mass., Room 1033, Park Square Bldg. (Hubbard 0380)

Chicago, Ill., Room 2600, Civic Opera Bldg. 20 No. Wacker Drive (Andover 3600)

Cincinnati, Ohio, Room 840, Union Trust Bldg. (Cherry 3740)

Cleveland, Ohio, 4th Floor, Union Commerce Bldg., Chester-9th St. (Cherry 5975)

Denver, Colo., 717 Kittredge Bldg., 511 Sixteenth St., (Tabor 3173)

Detroit, Mich., 1st Floor, Room 15, Boulevard Bldg., 7310 Woodward Ave. (Trinity 1-5500)

Houston, Tex., Room 3201, Gulf Bldg. (Capital 7201)

Indianapolis, Ind., Room 1408, Circle Tower Bldg. (Market 8511)

Los Angeles, Calif., 755 Western Pacific Bldg., 1031 So. Broadway, (Richmond 0311)

Minneapolis, Minn., 326 Midland Bank Bldg. (Maine 3244)

Newark, N. J., Room 601, 605 Broad St. (Mitchell 2-1114)

New Haven, Conn., Room 515. 152 Temple St. (6-5186)

New York, N. Y., Room 2026, 11 West Forty-second St. (Murray Hill 3-6805)

Philadelphia, Pa., Room 1740, 12 South Twelfth St. (Locust 3400)

Pittsburgh, Pa., Room 360, Administration Bldg., Carnegie Institute of Technology (Mayflower 2600)

Portland, Oreg., Room 1006, Bedell Bldg. (Broadway 0380)

Raleigh, N. C., Raleigh Bldg., Fayetteville and Hargett Sts. (2-3306)

St. Louis, Mo., Room 603, Shell Bldg. (Central 4206)

San Francisco, Calif., Room 702, Newhall Bldg., 260 California St. (Garfield 3100)

Seattle, Wash., Room 960, Stuart Bldg., Fourth and University Sts. (Eliot 6404)

C. R. DOOLEY
Director

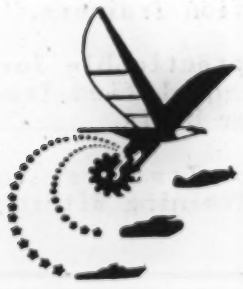
HEADQUARTERS OFFICE
Fourth Street and Independence Avenue, SW.
Washington, D. C. (EXecutive-4660)

WALTER DIETZ
Associate Director

6-0256-BU-CT-FO-WP

JOB METHODS TRAINING

one of the services made available to all war production contractors and sub-contractors by ***TRAINING WITHIN INDUSTRY*** *of the* ***WAR MANPOWER COMMISSION***



This is a plan that puts into effect the procedure outlined by the Training Within Industry Bulletin 4-C entitled, "HOW TO IMPRO'E JOB METHODS."

It is specially prepared to help all supervisors, who must make the maximum use of materials, machines and manpower now available - foremen, lead men, job setters, and related staff men. It is useful to all who direct the work of others - from foremen to works manager.

JOB METHODS TRAINING HELPS SUPERVISORS

IMPROVE PRODUCTION METHODS.

Who originated it

The principles of Job Methods improvement set forth in the Plan have always been used in American industry.

The present condensed Plan was worked out by a group of the nation's leaders in industrial training, loaned by their companies to the War Manpower Commission for this purpose.

How it operates

The training is given to groups of plant supervisors in 5 two-hour sessions, at any periods convenient to the companies and those who attend. It can be given at any time, day or night, on any days, Sunday included. It is essential that those supervisors to whom it is planned to give Job Methods Training, have had Job Instructor Training.

How many in groups

Best results are obtained with groups of 12. With groups composed of more than 12, there is not sufficient time, for actual individual practice. This Plan is NOT a discussion of theory but a plan where participants spend most of their time ACTUALLY MAKING JOB IMPROVEMENTS.

Who will conduct the sessions

The 5 two-hour sessions will, in most cases, be led by specially selected leaders already in the employ of each company of plant. Such leaders are designated as "War Production Trainers."

Where it is not feasible or practicable for the company to provide its own War Production Trainers, qualified Trainers from other industries will be provided on a part-time basis.

Supervision of War Production Trainers, to assure a high standard of quality, will be provided by Training Within Industry.

What does it cost

All War Production Trainers will be specially prepared and coached to carry on the program. This preparation requires four days. The four-day session will be conducted by a representative of Training Within Industry WITHOUT COST to the company.

If Trainers are provided from other industries, they will receive a modest hourly compensation out of Federal funds administered by the State Vocational Board.

How to get started

All that is necessary to get started is to notify the District Representative, of Training Within Industry, War Manpower Commission, or one of the District Training Consultants.

Each company will be asked to designate one contact person, with whom all schedules and details may be arranged.

TRAINING WITHIN INDUSTRY

Washington, D. C. WAR MANPOWER COMMISSION October, 1942
(Rev. Dec. 1942)

Bulletin #4-C

JOB METHODS TRAINING PLAN

HOW TO IMPROVE JOB METHODS

You know materials are growing scarcer. Machines are difficult to get or replace. And manpower is getting to be a critical issue.

A big part of the answer is to develop better ways of doing the work you supervise with the manpower, machines, and materials NOW AVAILABLE.

Perhaps you worked out a better way to do one of the jobs you supervise today. If so, you made an important contribution to victory. But are you working out better methods every day?

Here is a Plan that will help you develop those BETTER JOB METHODS NOW. It will help you to produce greater quantities, of quality products, in less time.

The principles are not new. The Plan was worked out in its present practical and usable form by industrial men who are facing the same problems as yourself.

Use this plan every day. Use it on EVERY job you supervise. The more you use it, the more opportunities you will find to put it to work.

Today, the need is to improve JOB METHODS to help do the biggest production job in history! The need is for you to make MORE improvements and to make them NOW!

C. R. Dooley
Director
Training Within Industry

Job Improvement has always been a part of your job.

You are looking for improvements every day. This is, and always has been, a part of your job. Continued improvement of basic ideas has made our country what it is. Think of the automobiles of 15 years ago. Compare them with the cars of today. Remember the radio of a few years ago? And the airplanes? And the rifles - and guns - in fact, thousands of modern pieces of fighting equipment that were unknown a few years ago? All this progress is the result of improvement. Some of it is improvement in design to be sure. But much of it is improvement in the METHODS of production. You may not be able to do much about basic design, but you CAN do something about the production methods.

Go after the "small things."

Look for the hundreds of small things you can improve. Don't try to plan a whole new department layout - or go after a big new installation of new equipment. There isn't time for these major items. Look for improvements on existing jobs, with your present equipment.

The "WAY" you make improvements is of first importance.

Go back in your memory as a workman.

Remember the time you "put up" with a job because it was awkward and caused you needless trouble and worry? Remember the "better way" you finally worked out which would have made it safer and easier to do? Remember how you wanted to tell your boss about your idea but he wasn't the kind of a fellow who was easy to talk to, and you never mentioned it to him?

Or perhaps, you remember the time when the boss "sprung" his new method on you and you had a pretty tough time "swallowing" it.

You will NEVER forget the time when the boss "had an idea" and asked you for YOUR opinion about it, and how you made several good improvements in his plan and how pleased you were.

Then go back over your experience as a supervisor.

Remember the time you put a new idea "up to the boss?" It was rather poorly worked out and he found a "bug" in your plan right off? And you didn't propose any more.

Remember the time you really had a good plan, but you neglected to get some of your fellow supervisors and engineers "in on it" and the plan fell flat?

Then, of course, you will NEVER forget the "better way" you worked out, that was put into effect and that did work. You still can feel the satisfaction that it gave you.

How to Improve Job Methods.

BETTER JOB METHODS are needed NOW - desperately so - but there is a RIGHT WAY to make them. Here is the plan. It has worked in thousands of cases, and in practically every kind of industry. There are FOUR STEPS to follow. No one step should be omitted. No one step is more important than the other.

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1. List all details of the job exactly as done by the Present Method.

2. Be sure details include all:

   Material Handling
   Machine Work
   Hand Work

   - take any job - take the first one you see in your department.

   - just "start right in" - jot down on a sheet of paper every detail as it happens. Do this right at the job. Don't try to do it back at your desk. You'll overlook something if you do.

   - don't be secretive or mysterious about it. Tell your workers what you are doing. Be frank and open about the listing of details.

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1. Use these types of questions:

   WHY is it necessary?
   WHAT is its purpose?
   WHERE should it be done?
   WHEN should it be done?
   WHO is best qualified to do it?
   HOW is "the best way" to do it?

2. Also question the:

   Materials, Machines, Equipment, Tools, Product Design, Layout, Work Place, Safety, Housekeeping.

   - just start down your sheet of details. Start questioning each one.

   - you won't get far, usually, until some improvements will occur to you.

   - perhaps a "BETTER WAY" will "flash" into your mind. Hold this "new idea" temporarily and question EVERY DETAIL on your list before you start to "dope out" the better way. If you stop to work your "flash," you may help only a part of the job, and overlook a broader or more useful improvement.

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1. ELIMINATE unnecessary details.

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   (a) Make the work easier and safer.
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5. WORK OUT your idea WITH others.

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- the boss must be "sold" to get his approval for a trial run.

- the operator may need to know more about it to give the new method a fair test.

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- remember, today's best way, is only for today. Tomorrow there will be a better way - and you will work it out!

- stealing an idea is really a form of sabotage. Be open-minded to suggestions, even if many of them are "wild ideas." A really good one will come along that can contribute to victory.

Often a new method will "pop" into your mind without working through these FOUR STEPS. This is to be expected at the start. However, these "flashes" will soon be exhausted. Don't expect them to continue. For consistent improvement, you must think your way carefully through ALL of the FOUR STEPS. You will have to dig beneath the surface for most of your improvements.

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C. R. DOOLEY
Director

HEADQUARTERS OFFICE
Fourth Street and Independence Avenue, SW.
Washington, D. C. (EXecutive-4660)

WALTER DIETZ
Associate Director

6-2687-bu-fo-wp

JOB METHODS TRAINING

A TRAINING WITHIN INDUSTRY PROGRAM

JOB METHODS TRAINING

helps supervisors make
the maximum use of

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Training Within Industry Service
Bureau of Training
War Manpower Commission

6-6828-bu-fo-wp

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TRAINING WITHIN INDUSTRY BULLETIN #4-C

Bureau of Training
WAR MANPOWER COMMISSION

Washington, D. C.
December, 1942

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EVERY SUPERVISOR HAS FIVE NEEDS:

1. Knowledge of the Work - materials, machines, tools, processes, operations, products, technical skill, and information.

2. Knowledge of Responsibilities - policies, agreements, rules, regulations, safety, schedules, interdepartmental relationships.

It is necessary for every supervisor to know his job technically and then to have a clear understanding of his local plant authority and responsibilities. Such knowledge must be supplied locally by each plant or company because both of these kinds of knowledge are constantly changing.

3. Skill in Instructing - shortening training time by breaking down jobs into simple operations, making the learner receptive, presenting the instruction, trying out his performance, following up for results.

4. Skill in Leading - increasing production by helping supervisors to improve their understanding of individuals, their ability to size up situations, their ways of working with people.

5. Skill in Planning - improving job methods by having supervisors study each operation in order to combine, rearrange, and simplify details affecting the use of materials, machines, tools, manpower.

These basic skills must be acquired individually. Practice and experience in using them enable both new and experienced supervisors to recognize and solve daily problems promptly.

The Training Within Industry programs offer short intensive training to war production supervisors to give them a start in developing:

skill in instructing through its Job Instruction Program
skill in leading through its Job Relations Training Program
skill in planning through its Job Methods Training Program

Confidence and resourcefulness in how to proceed, not standardized solutions and rules, are developed; these enable supervisors to get good teamwork, to give better service, and to get out more production. In no other way can production be so quickly influenced and manpower conserved.

8-8828-bu-fo-w

JOB RELATIONS TRAINING

A TRAINING WITHIN INDUSTRY PROGRAM

Training Within Industry Service

Bureau of Training

War Manpower Commission

6-6564-bu-fo-wp

What It Is

A practical way to help supervisors to develop skill in getting results through the people they supervise, not only as individuals but as a team.

The Training Within Industry Bulletin "How to Improve Job Relations" describes the method.

Where Did It Originate

This material was drawn from the work experience of successful supervisors who have practiced the principles of good Job Relations and are recognized for their ability as leaders.

This program was developed and organized by the Training Within Industry Service of the War Manpower Commission.

How it operates

The training is given to groups of plant supervisors in 5 two-hour sessions, at any periods convenient to the companies and those who attend. It can be given at any time, day or night, on any days, Sundays included.

How many in groups

Best results are obtained with groups of 10. With groups composed of more than 10, there is not sufficient time for actual individual practice. This program is NOT a discussion of theory but a plan where participants spend most of their time working on their own job relations problems.

Who will conduct the sessions

The 5 two-hour sessions will, in most cases, be led by selected leaders already in the employ of each company or plant. Such leaders are designated as "Job Relations Trainers." All Job Relations Trainers will be specially prepared and coached by the Training Within Industry Service.

Where it is not feasible or practicable for the company to provide its own Job Relations Trainers, qualified Trainers from other industries will be provided by Training Within Industry.

What does it cost

The six-day Institute in which Job Relations Trainers are prepared will be conducted by a Training within Industry representative WITHOUT COST to the company. If Trainers for the 5 two-hour sessions are provided from other industries by the Training within Industry Service they will receive hourly compensation from Federal funds.

How to get started

The District Representative of the Training Within Industry Service, War Manpower Commission, or one of the District Training Consultants, will arrange to make Job Relations Training available to all war contractors who request the program.

Each company will be asked to designate one contact person, with whom all schedules and details may be arranged.

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T R A I N I N G W I T H I N I N D U S T R Y S E R V I C E

WAR MANPOWER COMMISSION

Bulletin No. 4-D

Washington, D. C. January, 1943

HOW TO IMPROVE JOB RELATIONS

In these times, for maximum production, machines and materials are not enough. We need the individual skills and the maximum cooperation of every man and woman who is at work turning out what our armed forces and civilian workers have to have.

You know how important it is not to have any lost production because of misunderstandings on the job, or because people do not realize the vital part they have in the war effort, or because someone is slowed down on his job by things that happened off the job.

Experienced supervisors who have demonstrated their ability to "work well with people" have developed a special skill. You can acquire this skill. By making use of it, you can be more sure of meeting your production requirements.

This is the time; and the place is right where you are!

C. R. Dooley, Director
Training Within Industry Service

EVERYDAY PROBLEMS

Does anyone in your department ever refuse to do some particular job? Or, maybe, even quit his job? Do you have any people who are discouraged or who make other people dissatisfied?

And are there any changes being made in your plant - in how you work, what you do - in the people you work with?

Does everyone come to work regularly, or are you ever held up by absenteeism? And do you ever find you are by-passed by people who go over your head to your own boss?

All job relations problems don't come up at once, but they do occur, and management does hold supervisorn responsible for handling such problems.

The supervision today needs a high degree of skill to handle his own problems. But as part of the skill, first of all, he needs a strong foundation for good relationships with the people whose work he directs.

THE FOUNDATION OF GOOD RELATIONS

You do not produce a ton of steel, build a single jeep - it is the people you supervise who turn out production. The supervisor needs to remember constantly that results come through people.

There are certain basic principles which are foundations in establishing and maintaining good relations between you and those whose work you direct. Always remember to:

Let each worker know how he is getting along.
Give credit when due.
Tell people in advance about changes that will affect them.
Make best use of each person's ability.

These principles apply to all workers, and they do not represent actions which are to be taken only once or at rare intervals. Constantly following them in day-to-day operation will pay dividends.

Let each worker know how he is getting along.

It is important to keep people posted on how they are measuring up against what is expected of them. The "everything is all right unless I tell you so" philosophy does not fit into modern supervision. The man who is doing all right should be told so. And it is often more important to check the person who is just beginning to skid. If you have to say "you've been slipping for quite a while," you know what the worker will feel - "why didn't you tell me sooner?"

Give credit when due.

The worker and the department deserve to know when their efforts have contributed to an accomplishment. Recognition of good work or faithful performance makes it easier to get extra effort again. You like to get proper credit yourself.

Tell people in advance about changes that will affect them.

It is not always possible for you to let a worker "in" on all decisions which affect him, but he can and should always be given the chance to "have his say." If you give the reasons for changes before they are made, you will avoid many misunderstandings.

Make best use of each person's ability.

Everyone likes to feel, particularly in war time, that he is working at his highest level of skill and ability. Take advantage of special interest in kinds of work, and give each person as much and as responsible work as he can handle.

TREATING PEOPLE AS INDIVIDUALS

While these foundations apply to all people, you cannot let it go at "treating them all alike." No one wants to be known simply as a time-card number or as "the new man" - neither you nor those you supervise. We are all different. What happens to one operator off the job makes him different from his partner on the same job. Each of us wants to be known for his own personal characteristics. There are things that you feel are important to you as an individual. You must remember other individuals feel the same way.

6-4221 P2 bu

THE SKILL OF UNDERSTANDING PEOPLE

Applying these foundations of good worker-supervisor relations will not guarantee smooth operation for you, but will prevent many misunderstandings.

However, there are other things which you must consider. You need to know each individual employee and what is important to him. You need to know your people for everyday operation of your department, and you particularly need this information when you have a difficult situation to handle as a job relations problem.

HOW TO HANDLE A PROBLEM

Because changes do occur, and problems do arise, you need to have skill in handling the situations which are within your responsibility. Often you are on the spot and you feel you must do something immediately. Hasty action may mean that you have a more difficult situation to handle later. When a problem arises, consider these steps as the outline for action:

1. Get the facts - be sure you have the whole story.
2. Weigh and decide - don't jump to conclusions.
3. Take action - don't pass the buck.
4. Check results - did your action help production?

1. Get the facts.

Problems may come up because of something that happens at the moment, but you need to get the whole background. Some of it will be made up of facts about the employee - his age, length of service, and experience on this job.

You will need, of course, to take into consideration both the plant rules and just "the way things are done here."

Remember in getting the facts you may think you know the person quite well, but if you classify him as a "good fellow" or a "chronic kicker," you are not really looking at an individual person. You must regard him as a person who is different from his work partner and from every other person in the department in every single aspect whether by a very slight or a very great degree.

As a supervisor, you must know what that man thinks and feels about himself and the people around him. Find out what the man wants - is he able or willing to express it - and what does he think should be done? and why? The experienced supervisor knows that he must also consider such other factors as health and working conditions which may be affecting the man.

If more than one person is involved, you must go through the same fact-finding steps for each person. Before you can plan what to do, you must be sure you really have the whole story.

6-4221 P3 bu

2. Weigh and decide.

All these facts must be assembled and considered together. When all the factors are brought together, fitted in, and considered in the light of their relations to each other, many times the right answer almost "jumps out." The wise thing to do becomes clearer.

Certainly you, the man on the spot, are in the best place to know the right thing to do, for you have the most complete picture of the assembled facts. If you jump to conclusions, you make poor use of your strategic position. When you act without evaluating the whole situation you are likely to have more difficult problems to handle later.

3. Take action.

While jumping to conclusions is a poor way to handle supervisory problems, putting off action may be equally unfortunate. A supervisor cannot "pass the buck" or he, himself, will be by-passed.

However, it is not "passing the buck" to recognize after full consideration of the problem that there are some situations which you cannot handle yourself. You also make a decision and take action when you size up a situation as one on which you need help, or recognize one which is not within your own job to handle and see that it is passed on to the person who does have the responsibility and authority.

In any action, timing must be considered - the wrong "time" can make it the wrong thing to do.

4. Check results.

You must determine whether your action worked. If it did not, you must re-examine the whole situation and attempt to find what of importance you overlooked. Checking the results of action is necessary in every situation because conditions change, and what worked with one individual will not necessarily work with another.

"GOOD" SUPERVISION

One of the hardest parts of your job will be that of giving consideration to the importance of people in a problem situation and knowing what is important to each individual person. This is not simply a matter of determining what is right or wrong, or deciding what is just or unjust, but is a practical approach to effective supervision. It may be thought to take too much time but day-by-day use of this skill in dealing with people will save you time in the long run.

If you know your people well enough to build them into a smooth operating group you will be playing an important part in war production.

6-4221 P4 bu-final

EVERY SUPERVISOR HAS FIVE NEEDS:

1. Knowledge of the Work - materials, machines, tools, processes, operations, products, technical skill, and information.

2. Knowledge of Responsibilities - policies, agreements, rules, regulations, safety, schedules, interdepartmental relationships.

It is necessary for every supervisor to know his job technically and then to have a clear understanding of his local plant authority and responsibilities. Such knowledge must be supplied locally by each plant or company because both of these kinds of knowledge are constantly changing.

3. Skill in Leading - increasing production by helping supervisors to improve their understanding of individuals, their ability to size up situations, their ways of working with people.

4. Skill in Planning - improving job methods by having supervisors study each operation in order to combine, rearrange, and simplify details affecting the use of materials, machines, tools, manpower.

5. Skill in Instructing - shortening training time by breaking down jobs into simple operations, making the learner receptive, presenting the instruction, trying out his performance, following up for results.

These basic skills must be acquired individually. Practice and experience in using them enable both new and experienced supervisors to recognize and solve daily problems promptly.

Training Within Industry Service offers short intensive training programs to war production supervisors to give them a start in developing:

skill in leading through its Job Relations Training program
skill in planning through its Job Methods Training program
skill in instructing through its Job Instruction Training Program

Confidence and resourcefulness in how to proceed, not standardized solutions and rules, are developed; these enable supervisors to get good teamwork, to give better service, and to get out more production. In no other way can production be so quickly influenced and manpower conserved.

WAR MANPOWER COMMISSION

Bureau of Training

TRAINING WITHIN INDUSTRY SERVICE

District Offices

For information or advisory assistance concerning the training of supervisors while on the job, apply to the Training Within Industry district office nearest you.

Atlanta, Ga., Room 603 Grand Theatre Bldg. (Hemlock 6890)

Baltimore, Md., Room 3106, Baltimore Trust Bldg. (Plaza 8170)

Boston, Mass., Room 1035, Park Square Bldg. (Hubbard 0380)

Chicago, Ill., Room 1265, Adams-Franklin Bldg., 222 West Adams St. (Andover 3600)

Cincinnati, Ohio, Room 705, Union Trust Bldg. (Parkway 0100)

Cleveland, Ohio, Room 513 Union Commerce Bldg., Euclid Avenue and East 9th St., (Cherry 7900)

Denver, Colo., Room 551 Equitable Building, (Tabor 3173)

Detroit, Mich., Room 15 Boulevard Bldg., 7310 Woodward Ave. (Trinity 1-5500)

Houston, Tex., North Mezzanine Floor Gulf Bldg. (Capital 7201)

Indianapolis, Ind., Room 915, Circle Tower Bldg. (Market 8511)

Los Angeles, Calif., 755 Western Pacific Bldg., 1031 So. Broadway (Prospect 4971)

Minneapolis, Minn., 516 Midland Bank Bldg. (Maine 3244)

Newark, N. J., Room 601, 605 Broad St. (Mitchell 2-1114)

New Haven, Conn., Room 515, 152 Temple St. (6-5186)

New York, N. Y., Room 2026, 11 West Forty-second St. (Murray Hill 3-6805)

Philadelphia, Pa., Room 1740, 12 South Twelfth St. (Locust 3400)

Pittsburgh, Pa., Room 360, Administration Bldg., Carnegie Institute of Technology (Schenly 2925)

Portland, Oreg., Room 1006, Bedell Bldg. (Broadway 8471)

Raleigh, N. C., Room 1112, Raleigh Bldg. Fayetteville and Hargett Sts., (2-3306)

St. Louis, Mo., Room 603, Shell Bldg. (Central 4206)

San Francisco, Calif., Room 702 Newhall Bldg., 260 California St. (Exbrook 0369)

Seattle, Wash., Room 5516 White Bldg. (Eliot 0200)

HEADQUARTERS OFFICE

1778 Pennsylvania Ave., N. W.
Washington, D. C. (EXecutive-4660)

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JOB INSTRUCTOR TRAINING

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one of the services made available to all war production contractors and sub-contractors by ***TRAINING WITHIN INDUSTRY*** *of the* ***WAR MANPOWER COMMISSION***



This is a plan that puts into effect the procedure outlined by the Training within Industry Bulletin 2-C entitled, "HOW TO INSTRUCT A MAN ON THE JOB."

It is specially prepared to help all those who instruct workers on the job -- group leaders, sub-foremen, lead men, job setters, experienced workers. It is useful to all who direct the work of others -- from foremen to works manager.

Who originated it

The principles of job instruction set forth in the Plan have been used in American industry for 25 years. They were first tried out during World War I.

The present condensed Plan was worked out by a group of the nation's leaders in industrial training, loaned by their companies to the War Manpower Commission for this purpose, along with Federal and State representatives for Vocational Education.

How it operates

The training is given in 5 two-hour sessions, at any periods convenient to the companies and those who attend. It can be given at any time, day or night, on any days, Sunday included.

How many in groups

Best results are obtained with groups of 12. With groups composed of more than 12, there is not sufficient time for actual individual practice. This Plan is not a discussion of theory but a plan where participants spend most of their time actually DOING the instructing job.

Who will conduct the sessions

The 5 two-hour sessions will, in most cases, be lead by experienced industrial men, serving part time, who have been specially trained to do this job. The quality of the work of these "War Production Trainers" is kept at a high standard through supervision from headquarters.

What does it cost

This training is given without cost to all companies holding war production contracts or sub contracts. The trainers receive a modest hourly compensation out of Federal funds, administered by the State Vocational Board.

How to get started

All that is necessary to get started is to notify the District Representative of Training within Industry, or one of the District Representative's Training Consultants.

A schedule supervisor will call promptly to meet with the Plant Superintendent, Personnel Manager or some designated person, to complete all arrangements for the first group, and subsequent groups.

TRAINING WITHIN INDUSTRY

WAR MANPOWER COMMISSION
Bulletin #2-C

Washington, D. C. May, 1942

HOW TO INSTRUCT A MAN ON THE JOB

You are about to instruct a man how to do his job. This is very important to the man - and to you - and to national war production.

Perhaps the man has been with you for years. Perhaps he has been transferred to you. Or maybe he is green - starting his first job. Or perhaps he has had long experience in a non-defense industry and is starting his new work on war production.

Here are some ideas that may help you. They were worked out by others, just like yourself, who had the same job to do. Study them. Use them. They are easy to follow.

C. R. Dooley, Director
Training within Industry

What You Want to Do.

Go back in your own memory. Remember how you felt the first day on a new job? - the time you were"stumped"by a new"wrinkle"on the job? - the time when you caused some scrap or re-work? - the time you got hurt? - the times when the boss corrected you and your work? Perhaps you liked the way he did it - or perhaps - you didn't?

Any worker assigned to you feels the same way. He wants to make a good showing. You realize this. You are interested in four things:

1. Having the new worker come up to the quality and quantity requirements of production as quickly as possible.

2. Avoiding accidents which will injure the worker.

3. Avoiding damage to machines or equipment.

4. Spoiling as little work as possible.

How You Can Do It.

Most of us just "jump right in" and start instructing or correcting a workman without much thought or planning. Perhaps you do the same.

- you know the job so well that you've forgotten the things that "stump" the learner

- you know it so well, that you don't plan how to "put it over"

- you know it so well that you don't pick out the "key points" - the "knacks" - the things that make or break the operation

To instruct a man right takes just a little extra time at the moment, but it saves hours and days of time later on, and prevents a large part of the scrap, spoiled work and accidents. The following plan is simple and easy to follow. Furthermore, it works.

- before instructing, there are four GET READY points for you to watch. You can do them in a few minutes.

- when instructing there are FOUR BASIC STEPS to follow. They really are no different than what you may now be doing. But they help you do it well and thoroughly. At least they have helped thousands of others.

HOW to GET READY to Instruct.

Here are the four GET READY points you should take care of before instructing:

1. Have a time table.
   - how much skill do you want the man to have?
   - how soon?

   When faced with a "breaking in" problem, don't say what all too many of us say - "IT TAKES TIME - - -", or "HE JUST HAS TO LEARN".

   Say to yourself instead: "HOW MUCH TIME - - -?"

   Here is an easy way to do it. Answer to yourself this statement: "(employee) should be able to (do what job) and do it (how well) by (what date)."

   Better yet, put down the names of your men on a piece of paper. Set yourself some dates when you are going to try to have them able to do the jobs they need to know. Time is short. Have a time table for yourself and your men.

2. Break down the job.

   You know that there is one right way to do every job. You know too that there are a few "key points" in every operation that make or break it. If these key things are done right, the whole operation is right. If any one of them is missed the operation is wrong.

   - if you put the job over to the worker with these key points made clear, he will really "get it".

   - he will do the operation right the first time.

   - He won't be "fighting" the work - making mistakes - getting hurt.

   There is an easy, quick way to get the job clearly outlined in your mind. Fill out a "Breakdown Sheet", (sample enclosed)

for each of your operations. It only takes three to five minutes. This is for your own use. It is not to be given to the worker.

3. Have everything ready,

- the right tools, equipment and materials.

When you so much as "touch" a job in front of a worker, set the correct example. Don't use the wrong tool. Don't fumble. Don't excuse. Don't miss a trick. When you have everything right, he is more likely to do the same.

4. Have the work place properly arranged,

- just as the worker is expected to keep it.

The same thing applies here as above. You must set the correct example. Put his bench, desk, stock pile or wherever he is to work, in proper order, before you start to put over the job to him. He won't do it if you don't do it.

HOW TO INSTRUCT.

Here is what you should do every time you instruct a man or correct his work:

STEP I. PREPARE the worker to receive the instruction.

- put him at ease. Remember he can't think straight if you make him embarrassed or scared.

- find out what he already knows about this job. Don't tell him things he already knows. Start in where his knowledge ends.

- get him interested. Relate his job or operation to the final product, so he knows his work is important.

- put him in the right position. Don't have him see the job backwards or from any other angle than that from which he will work.

STEP II. PRESENT the operation.

-tell him, show him, illustrate, ask.

-"put it over" in small "doses". He (the same as all of us) can't catch but six or eight new ideas at one time and really understand them,

-make the "key points" clear. These will make or break the operation - maybe make or break him.

- be patient - and go slowly. Get accuracy now - speed later.

- repeat the job and the explanation if necessary.

STEP III. TRY OUT his performance.

- have him do the job, but watch him.

- then have him do it again, but have him EXPLAIN to YOU what he is doing and why. All of us find it easy to observe motions and not really understand what we are doing. YOU want him to UNDERSTAND.

- have him explain the key points.

- correct his errors, but don't bawl him out or indicate that he is "thick" or "dumb".

- continue doing all this until YOU know HE knows. He may have to do the job half a dozen times.

STEP IV. FOLLOW-UP.

- put him on his own. He has to "get the feel" of the job by doing it himself.

- tell him to whom he should go if he needs help. make this definite - yourself or someone you designate. The wrong person might give him a "bum steer".

- check him frequently - perhaps every few minutes at the start, to every few hours or few days later on. Be on the lookout for any incorrect or unnecessary moves. Be careful about your taking over the job soon, or too often. Don't take it over at all if you can point out the helps he needs.

- get him to look for key points as he progresses.

- taper off this extra coaching until he is able to work under normal supervision.

Use this plan. You will find it amazing that such greatly improved results can come from such a simple plan.

Use it, or whatever part of it applies, every time to put over a new operation, check a man's work, or change a work procedure.

IF THE WORKER HASN'T LEARNED, THE INSTRUCTOR HASN'T TAUGHT!

What it is designed to accomplish

Typical problems in war production plants which the Plan has helped solve.

Production problems

Deliveries delayed because of errors and mistakes of men making the parts.
Men don't know their jobs.
Mix-ups in trucking service.
Parts returned by other departments because they were not made right.
Operators have special problems because of engineering changes.
Poor planning.
Men have difficulty in getting up to production on new type equipment.
Aisles too congested.
Excessive wear and tear on equipment.

Safety problems

Safety equipment not properly used.
Material not piled properly.
Poor shop housekeeping.
Don't know safety rules.
Men don't know hazards of their jobs.
Men get careless.
Minor injuries not reported.

Quality problems

Meeting inspection standards.
Too much scrap or re-work.
Jigs and gauges not properly used.
Not following specifications.
Too much left to operator's judgment.

Personnel problems

Men leave to other plants - couldn't "get the hang" of the job.
New men lack experience in mechanical things.
Lack interest in the work.
Men want transfers - think they can "make out" better on other jobs.
Claim to have good experience but don't "come through!"
Too much time to get up to production.
Instructed wrong way.
Can't get experienced men any more.
Men get discouraged learning the job.

Most managers say that somewhere around 80% of their shop problems could be solved -- or at least HELPED *-- if they had a better trained work force.*

How About Yours?

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY

District Offices

For information or advisory assistance concerning the training of workers while on the job, apply to the Training Within Industry district office nearest you.

Atlanta, Ga., Georgia School of Technology, 225 North Ave., NW. (Hemlock 6890)

Baltimore, Md., Room 3106, Baltimore Trust Bldg. (Plaza 7460)

Boston, Mass., Room 1033, Park Square Bldg. (Hubbard 0380)

Chicago, Ill., Room 2600, Civic Opera Bldg. 20 No. Wacker Drive (Andover 3600)

Cincinnati, Ohio, Room 840, Union Trust Bldg. (Cherry 3740)

Cleveland, Ohio, 4th Floor, Union Commerce Bldg., Chester-9th St. (Cherry 5975)

Denver, Colo., 717 Kittredge Bldg., 511 Sixteenth St., (Tabor 3173)

Detroit, Mich., 1st Floor, Room 15, Boulevard Bldg., 7310 Woodward Ave. (Trinity 1-5500)

Houston, Tex., Room 3201, Gulf Bldg. (Capital 7201)

Indianapolis, Ind., Room 1408, Circle Tower Bldg. (Market 8511)

Los Angeles, Calif., 755 Western Pacific Bldg., 1031 So. Broadway, (Richmond 0311)

Minneapolis, Minn., 326 Midland Bank Bldg. (Maine 3244)

Newark, N. J., Room 601, 605 Broad St. (Mitchell 2-1114)

New Haven, Conn., Room 515. 152 Temple St. (6-5186)

New York, N. Y., Room 2026, 11 West Forty-second St. (Murray Hill 3-6805)

Philadelphia, Pa., Room 1740, 12 South Twelfth St. (Locust 3400)

Pittsburgh, Pa., Room 360, Administration Bldg., Carnegie Institute of Technology (Mayflower 2600)

Portland, Oreg., Room 1006, Bedell Bldg. (Broadway 0380)

Raleigh, N. C., Raleigh Bldg., Fayetteville and Hargett Sts. (2-3306)

St. Louis, Mo., Room 603, Shell Bldg. (Central 4206)

San Francisco, Calif., Room 702, Newhall Bldg., 260 California St. (Garfield 3100)

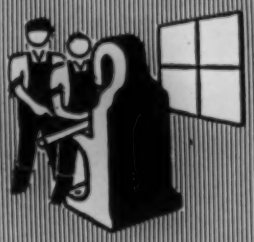
Seattle, Wash., Room 960, Stuart Bldg., Fourth and University Sts. (Eliot 6404)

C. R. DOOLEY
Director

HEADQUARTERS OFFICE
Fourth Street and Independence Avenue, SW.
Washington, D. C. (EXecutive-4660)

WALTER DIETZ
Associate Director

6-0256-BU-CT-FO-WP



MORE PRODUCTION THROUGH TRAINING

The

TRAINING WITHIN INDUSTRY PROGRAM

January 1943

(Originally issued January 1942)

Bulletin No. 1

TRAINING WITHIN INDUSTRY

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY PUBLICATIONS

*Bulletins**

1. The Training Within Industry Program.
2. Upgrading.
2–C. How to Break in a Man on a New Job.
3. Developing All - Round Skilled Craftsmen through Apprenticeship.
4. Strengthening the Managerial Organization.
4–A. Expanding the Managerial Organization.
4–B. Improving Supervisors' Knowledge of Responsibilities.
4–C. How to Improve Job Methods.
4–D. How to Improve Job Relations.
4–E. How to Set up a Plant Training Program.
4–F. How to Select New Supervisors.
6. Tying in Pre-Employment Training with On-the-Job Training.
6–A. Supplementary Instruction for Upgrading.
7. Increasing War Production Through Employment of Women.
8. Introducing the New Employee to the Job.
8–A. Safety on the Job for the New Employee.

*Examples of Successful Training**

Meeting the Need for Skilled Workers in a New Airplane Engine Plant.

Training for Quick Production in Heavy Manufacture.

Organizing Manpower for a Small-Arms Ammunition Plant.

Upgrading in a Large Steel Corporation.

Training for the Electrical Department of a Shipyard.

Training for Arc Welding and Acetylene Burning in a Shipyard.

Training for the Toolroom and the Machine Repair.

*Any publication listed above is available without charge on application to the nearest Training Within Industry District Office. See pages 8–11 for locations.

Send orders to Superintendent of Documents, Washington, D. C.

Job Instruction (Western Electric Company), 10 cents.

An Introduction to Shipbuilding (Bethlehem Steel Company), 20 cents.

The PROGRAM

THE Training Within Industry Program was established in August 1940 by the National Defense Advisory Commission and was continued under the Office of Production Management and then the War Production Board. By Presidential order on April 18, 1942, Training Within Industry was transferred to the Federal Security Agency to function as a part of the new War Manpower Commission which now handles all problems of labor supply and training.

Underlying PURPOSE of "TWI" activity is:

> ***To assist war production industries to meet their manpower needs by training within industry each worker to make the fullest use of his best skill up to the maximum of his individual ability, thereby enabling production to keep pace with war demands.***

Training Within Industry deals exclusively with industry's own training responsibilities. It recommends that all war production plants, consistent with the terms of their existing labor agreements, give balanced and appropriate attention to the following phases of in-plant training:

1. *UPGRADING* of all classes of personnel as their experience and abilities warrant, through planned job progression, job rotation, and intensive supplementary instruction both on and off the job. Each plant should take stock of the talent and experience of its own personnel before employing new men and women.

•

2. Development of *PRODUCTION SPECIALISTS* through intensive instruction on the job in basic operations.

•

3. Development of all-round *SKILLED MECHANICS* through trade apprenticeship, in accordance with Federal standards, separate from production worker training, for the purpose of developing a predetermined, limited number of all-round journeyman mechanics.

•

4. Development of *SUPERVISORS* through careful selection, assignment of supervisory duties of increasing responsibility, and provision for related organized help through discussions and conferences, under both plant and outside auspices, dealing with methods of instruction, methods of developing better ways of doing a job, methods of improving working relationships, and knowledge of responsibilities.

•

HOW "TWI" ASSISTS WAR PRODUCTION INDUSTRY

It maintains a field force with offices in 22 districts throughout the United States, as listed in this bulletin. It is staffed by training and personnel specialists, many of whom are loaned by their companies for part-time or full-time work.

T. W. I. Advises

Training Within Industry renders specific advisory assistance to war production industries in inaugurating and improving programs which they carry on within their own plants, at their own expense. There is no authority to enter a plant on any basis other than with management's cooperation. Four general types of advisory assistance, listed below, apply in most cases and are adapted to fit conditions in each specific plant:

1. Identification of training needs and recommendation of training programs to fill such needs.
2. Aid in setting up a program within a plant to meet its needs.
3. Clearing house on experience of other employers who have met their training problems. This is cleared through "TWI" headquarters and its field organization.
4. Recommending the most effective use of tax-supported employment and training agencies of the State and Federal governments. Only through interpreting job requirements and the needs of industry to these agencies and interpreting their facilities to industry can maximum results be obtained from preemployment and supplementary instruction.

T. W. I. Conducts

In addition to the above advisory assistance, the Training Within Industry Division conducts specific intensive training programs for the development of potential, newly appointed, and experienced supervisors and training directors. The programs for supervisors require 10 hours, and for training directors 48 hours.

Job Instruction Training gives the supervisor practice in how to "break in" men on new jobs.

Job Methods Training shows the supervisor how to simplify and improve methods of doing a job.

Job Relations Training gives the supervisor pointers and practice in how to work with people in a way that gains cooperation and promotes teamwork.

Training of Training Directors gives intensified coaching in how to operate and improve complete, plant-wide training programs.

The
POLICY
approved by both Management and Labor

"LEARN BY DOING — PRODUCE WHILE LEARNING"

IN this emergency, as well as in normal times, it is good American practice and efficient business for each worker to make the fullest use of his best skill up to the maximum of his individual ability. Only through such use of the intelligence and skill of the Nation's manpower can production keep pace with war needs.

1. Additional workers should not be trained unless locally available workers of equal skill have been absorbed.

2. There are normal losses from among skilled workers due to advancement into supervisory positions, changes to other occupations, sickness, death, and retirement. These losses go on continuously, and it is necessary to bring along well-trained workers to replace them. In addition, there is need to make up for the lack of apprentice training during the past 10 years. These are the reasons why organized apprenticeship programs are so important now.

There are two important phases of apprentice training:

(*a*) A definitely planned program of experience, scheduled and assigned step by step to enable the apprentice over a predetermined time to acquire skill in various kinds of skilled work in a trade.

(*b*) For every skilled job there is related technical matter, much of which can best be taught off the job. To be effective, this related instruction must be very closely tied into the current job experience. Practice, related theory, and technical knowledge must go hand in hand. Workers, employers, and technical educators should collaborate in determining what shall be included in this instruction and how it can best be related to the work experience.

The proportion of apprentices to be trained can best be determined in local areas in numbers and programs agreed upon in joint conferences between management and interested groups of employees or by agreements arrived at by collective bargaining units.

3. In a less formal way, many workers acquire a breadth of experience by learning one job at a time and becoming skilled in that, and advancing to a higher grade of work when opportunity permits. In an upgrading program the time cannot be definite; it is controlled by available opportunities, depending upon production programs and specific vacancies as they occur. This differs from an apprenticeship program where the opportunity is controlled by advance agreement. Therefore, while craftsman experience may be gained by an apprentice in from 3 to 4 years, it may take the production specialist two or three times as long, or longer, to acquire corresponding skill and versatility through an upgrading program, and, of course, many will remain in a specialized occupation.

In times of rapid expansion when there is a shortage of skilled workers, there is no choice but that of using inexperienced workers from other kinds of work or young people without any work experience but with good orientation background gained in public vocational schools during preemployment training. Through intensive instruction on the job they must then be brought to their highest skill on a limited

operation in the shortest possible time. Advancement into more skilled work should always be made from among employees of longer experience on jobs which are good foundations for the higher skills. Attempts should not be made to displace all-round skilled workers by narrowly skilled specialists.

4. Where there is a collective bargaining agreement the employees' elected representatives should work with management in the establishment of plant training programs.

5. Management has a twofold responsibility: Foremen, instructors, and experienced workers must assist less experienced workers in acquiring new skills; and as far as possible they should see that employees who have the desire and capacity for advancement be not kept indefinitely on jobs requiring skill in single operations. The supervisor therefore has the responsibility of developing his men and should acquire special skill in instruction just as he must acquire the skill of maintaining good relations with his men and the skill of improving technical production.

Apprenticeship, upgrading, and supervisory training programs within industry are greatly implemented by making available opportunities for individuals to get instruction and related knowledge which enable them to fit themselves for advancement. Whether these facilities are made available by public educational institutions, employers or organized labor groups, it is essential that there be continuous consultation between workers, management, and educators. Only through such cooperation can the instruction be of immediate practical value.

Such philosophy, such practices, and such consultation should result in well-balanced training programs, and bring about an orderly and an effective approach to creating and maintaining a supply of competent workers available to meet the rapidly increasing needs of war industry. Training Within Industry promotes these policies.

APPROVED ON AUGUST 21, 1942
MANAGEMENT-LABOR POLICY COMMITTEE
WAR MANPOWER COMMISSION

R. Conrad Cooper,
Wheeling Steel Corporation.

H. A. Enochs,
The Pennsylvania R. R. Co.

Frank P. Fenton,
American Federation of Labor.

John P. Frey,
American Federation of Labor.

Lt. Col. Kenneth Gardner,
N. Y. Shipbuilding Corp.

R. E. Gillmor,
Sperry Gyroscope Co., Inc.

Clinton S. Golden,
United Steel Workers of America.

John Green,
Industrial Union of Marine and Shipbuilding Workers of America.

R. Randall Irwin,
Lockheed Aircraft Corporation.

George Masterson,
United Association of Journeymen Plumbers and Steamfitters.

Walter P. Reuther,
United Automobile, Aircraft, and Agricultural Implement Workers of America.

C. J. Whipple,
Hibbard, Spencer, Bartlett & Co.

Mr. Fenton, Mr. Gillmor, Mr. Irwin, and James J. Matles, of the United Electrical and Radio Workers (alternate for Mr. Golden), are members of the Advisory Subcommittee for liaison between the Training Within Industry Division and the Management-Labor Policy Committee.

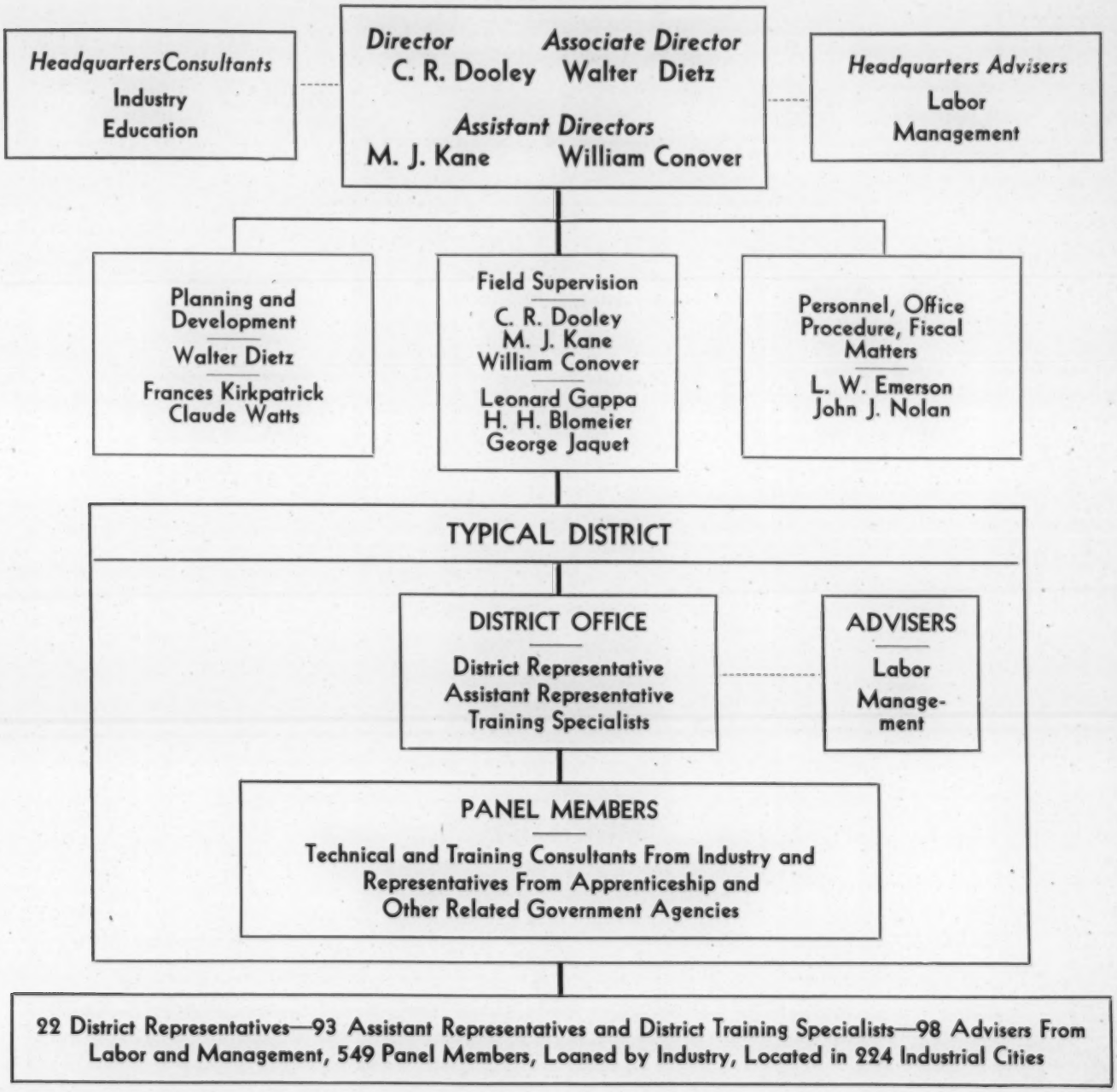
Training Within Industry has been guided by a Committee of Labor and Management Advisers which approved the first statement of the program on September 18, 1940, and issued the first "TWI" Policy statement in April 1941. The above policy statement continues the basic policy originally established. The members of the original committee were: M. F. Burke, C. S. Ching, E. O. Davidson, Clinton S. Golden, John Green, M. H. Hedges, R. Randall Irwin, W. G. Marshall, K. F. Ode, Walter P. Reuther, E. J. Robeson, and John E. Rooney.

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY

ORGANIZATION

Headquarters: Room 4762, Social Security Building
Fourth St. and Independence Ave. SW., Washington, D. C.
Executive 4660



FIELD ORGANIZATION

★ In addition to the names shown, each district staff includes ten or more panel consultants who are not listed

DISTRICT	Office Address	Representative
1	**Northern New England** Maine, Massachusetts, Vermont, New Hampshire Room 1035, Park Square Building, **Boston,** Mass. (Hubbard 0380)	**Harry H. Kerr,** Boston Gear Works, Inc.
2	**Southern New England** Connecticut, Rhode Island Room 513, 152 Temple Street, **New Haven,** Conn. (6-5186)	**Joseph Eugene Moody,** Hat Corp. of America
3	**Upstate New York** New York State (exclusive of Metropolitan New York)	**Sterling W. Mudge,** Acting Representative
4	**Metropolitan New York** Room 2026, 11 West 42nd Street, **New York,** N. Y. (Murray Hill 3-6805)	**Sterling W. Mudge,** Socony Vacuum Oil Co.
5	**New Jersey** Room 601, 605 Broad Street, **Newark,** N. J. (Mitchell 2-1114)	**Glenn L. Gardiner,** Forstmann Woolen Co.
6	**Eastern Pennsylvania and Delaware** Room 1740, 12 South 12th Street, **Philadelphia,** Pa. (Locust 3400)	**H. W. Jones,** The Atlantic Refining Co.
7	**Maryland** Room 3106, Baltimore Trust Building, **Baltimore,** Md. (Plaza 8170)	**James H. Kahlert,** Bendix Radio Corp.
8	**Atlantic Central** Virginia, North and South Carolina Raleigh Building, Fayetteville and Hargett Streets, **Raleigh,** N. C. (2-3306)	**George G. Arthur** The Champion Paper & Fibre Co.
9	**Southeastern** Georgia, Florida, Alabama, Mississippi, Central and Eastern Tennessee Georgia School of Technology, 225 North Avenue NW., **Atlanta,** Georgia. (Hemlock 6890)	**A. S. Hotchkiss,** Tennessee Coal, Iron & Railroad Co.
10	**Ohio Valley** Southern Ohio, Southern West Virginia, Kentucky Room 703-705, Union Trust Building, **Cincinnati,** Ohio. (Cherry 3740)	**Paul Mooney,** Kroger Grocery and Baking Co.
11	**Western Pennsylvania** (except Erie County) and Northern West Virginia. Room 360, Administration Building, Carnegie Institute of Technology, **Pittsburgh,** Pa. (Mayflower 2600)	**C. S. Coler,** Westinghouse Electric & Manufacturing Co.
12	**Northern Ohio** (except Lucas County) and Erie County, Pa. 4th Floor, Union Commerce Building, Chester and Ninth Streets, **Cleveland,** Ohio. (Cherry 5975)	**Oscar Grothe,** White Sewing Machine Co.

Advisers

Districts 1 to 8, inclusive

Labor Advisers—	Management Advisers—	DISTRICT
Joseph J. Kelleher, Worcester Industrial Union Council, CIO J. Arthur Moriarty, Boston Typographical Union	Clarence G. McDavitt, New England Tel. & Tel. Co. Everard Stubbs, Fellows Gear Shaper Co.	1
J. H. DeCantillon, International Association of Machinists Thomas Kearney, International Brotherhood of Electrical Workers	Carl A. Gray, Grenby Manufacturing Co. Richmond Viall, Brown & Sharpe Mfg. Co.	2
(To be appointed)	(To be appointed)	3
Thomas J. Lyons, N. Y. State Federation of Labor Gustave A. Strebel, N. Y. State Industrial Union Council John J. Brennan, Alternate, Building and Construction Trades Council	D. J. Hoose, The Texas Co. R. E. Gillmor, Sperry Gyroscope Co., Inc. J. C. Ward, Jr., Fairchild Engine & Airplane Corporation	4
Peter J. Flynn, Industrial Union of Marine & Shipbuilding Workers of America Carl L. Gylling, International Association of Machinists	Thomas R. Jones, American Type Founders, Inc.	5
Anthony Martinez, Steel Workers Organizing Committee Carl Bersing, Philadelphia Industrial Union Council Charles Sehl, International Association of Machinists David Williams, Pennsylvania Federation of Labor	Earl Sparks, Metal Manufacturers Association L. B. F. Raycroft, Electric Storage Battery Co.	6
Frank J. Bender, Regional Director, CIO F. N. Kershaw, International Association of Machinists	Alonzo G. Decker, Sr., The Black & Decker Mfg. Co. Stewart Cort, Bethlehem Steel Co. Charles R. Hook, Jr., Rustless Iron and Steel Co.	7
E. L. Sandefur, Director, CIO T. A. Wilson, North Carolina Industrial Commission C. A. Fink, North Carolina State Federation of Labor	Edward J. Robeson, Jr., Newport News Shipbuilding & Dry Dock Co. Frederick W. Symmes, Union Buffalo Mills Co.	8
Paul R. Christopher, Tennessee State Industrial Union Council Dewey L. Johnson, Georgia Federation of Labor Charles Gramling, American Federation of Labor	B. W. Sinclair, Georgia Power Co. James F. Vance, Tennessee Coal, Iron & Railroad Co.	9
John J. Hurst, Central Labor Council	Lewis M. Crosley, The Crosley Corporation George A. Seyler, The Lunkenheimer Co.	10
Clinton Golden, Steel Workers Organizing Committee, CIO William G. Shord, Director, International Brotherhood of Electrical Workers	W. G. Marshall, Westinghouse Electric & Manufacturing Co. Henry D. Scott, Wheeling Steel Corporation	11
Albert Dalton, Cleveland Building and Construction Trades Council	Ray S. Livingstone, Thompson Products Co. Warner Seeley, Warner-Swasey Co.	12

FIELD ORGANIZATION

★ In addition to the names shown, each district staff includes ten or more panel consultants who are not listed

DISTRICT	Office Address	Representative
13	**Michigan** and Lucas County, Ohio 15 Boulevard Building, 1st floor, 7310 Woodward Avenue, **Detroit,** Mich. (Trinity 1-5500)	**M. M. Olander,** Owens-Illinois Glass Co. **O. F. Carpenter,** Associate Representative
14	**Indiana** (except Lake and Porter Counties) Room 1428, Circle Tower Building, **Indianapolis,** Ind. (Market 9411)	**A. E. Sinclair,** P. R. Mallory & Co.
15	**Mid-West** (except 3 counties adjacent to St. Louis, Mo.), 2 counties in Indiana, and 1 county in Iowa Room 2600, 20 North Wacker Drive, **Chicago,** Ill. (Andover 3600)	**Paul A. Mertz,** Sears Roebuck & Co.
16	**North Central** Minnesota, North Dakota, South Dakota, Iowa (except 1 county), Nebraska 326 Midland Bank Building, **Minneapolis,** Minn. (Maine 3244)	**Ernest L. Olrich,** Munsingwear, Inc.
17	**South Central** Missouri, Kansas, Oklahoma, Arkansas, Western Tennessee, and 3 counties in Illinois Room 603, Shell Building, **St. Louis,** Mo. (Central 4206)	**A. Earl Wyatt,** Laclede Gas Light Co.
18	**Gulf District** Texas and Louisiana Room 3201, Gulf Building, **Houston,** Tex. (Capitol 7201)	**Tracy T. Word,** Acting Representative
19	**Mountain District** Colorado and Wyoming 7th floor 511 Sixteenth Street, Kittredge Building, **Denver,** Colo. (Tabor 3173)	**George M. Kirk,** Colorado Fuel & Iron Corp.
20	**Pacific Southwest** Southern California, Arizona, New Mexico 755 Western Pacific Building, 10315 Broadway, **Los Angeles,** Calif.	**Garner Beckett,** Riverside Cement Co.
21	**Pacific Central** Northern California, Nevada, Utah Room 702, Newhall Building, 260 California Street, **San Francisco,** Calif. (Exbrook 0369)	**Alexander R. Heron,** Crown Zellerbach Corp.
22	**Pacific Northwest** Washington, Oregon, Idaho, Montana Room 957, Stuart Building, Fourth and University Streets, **Seattle,** Wash. (Eliot 6404) **Oregon District** Bedell Building, Room 1006, **Portland,** Oreg. (Broadway 0380)	**Walter Williams,** Continental, Inc.

Advisers

Districts 16 to 22, inclusive

Labor Advisers—	Management Advisers—	DISTRICT
John Reid, Michigan State Federation of Labor Walter P. Reuther, United Automobile Workers of America	Willis H. Hall, Detroit Board of Commerce Frank Rising, Automotive Parts & Equipment Manufacturers, Inc.	13
James C. Robb, Steel Workers Organizing Committee, C. I. O. Roy Creasey, International Brotherhood of Electrical Workers	Henry C. Atkins, Jr., E. C. Atkins & Co. Lothair Teetor, The Perfect Circle Co.	14
George E. Mischeau, Steel Workers Organizing Committee Albert G. Fox, Sheet Metal Workers Union Local 115, AFL Otto A. Jirikowic, International Association of Machinists Paul H. Steffes, United Auto Workers Local 75 Terry Kandal, Alternate, United Auto Workers Local 719	Harold F. North, Swift & Company L. J. Parrish, A. O. Smith Corporation. H. A. Schauer, Alternate, Hasco Valve Co.	15
Sander Genis, Congress of Industrial Organizations George Lawson, Minnesota Federation of Labor	Harry W. Clark, Hugo Manufacturing Co. Fred Crosby, American Hoist & Derrick Co. C. L. Mandelert, Chippewa Falls Woolen Mill Co. Herbert J. Miller, Minnesota State Resources Commission Gust Olson, Jr., Deere & Co. Karl Vogel, Omaha Steel Works	16
Joseph P. Clark, Central Trades & Labor Union of St. Louis and vicinity A. F. Kojetinsky, Steel Workers Organizing Committee Lloyd M. McBride, Alternate, Steel Workers Organizing Committee Joseph A. Waldron, Alternate, Metal Polishers, Buffers, Platers & Helpers International Union	Wilbur B. Jones, St. Louis Chamber of Commerce Walter Siegerist, Medart Co.	17
Clyde Ingram, Congress of Industrial Organizations A. S. McBride, American Federation of Labor	David Harris, Humble Oil & Refining Co. Ed Lorehn, Cameron Iron Works	18
Martin Cahill Wyoming Federation of Labor Floyd F. Miles, Second Judicial Court, State of Colorado	Harold F. Silver, Silver Engineering Works, Inc. Charles O. Voigt, The Stearns-Roger Manufacturing Co. Adam S. Bennion, Utah Power & Light Co. C. T. Keigley, Columbia Steel Co.	19
Cornelius J. Haggerty, California Federation of Labor James G. Thimmes, Steel Workers Organizing Committee	David T. Babcock, Blythe & Co., Inc. A. H. Young, California Institute of Technology	20
J. Scott Milne, International Brotherhood of Electrical Workers	James R. Moore, Moore Dry Dock Co. Julian F. Arntz, Bethlehem Steel Co.	21
H. S. McIlvaigh, Tacoma Central Labor Council D. E. Nickerson, Oregon Federation of Labor	Ernest R. Hinton, Olympia Steel Works Claire Bowman, Morris H. Jones, Jones Lumber Co. Ross McIntyre, International Sales & Produce Co.	22

High Spots in the "TWI" Program

1. This is ***not a policy-making program.*** It gives no consideration to whom an employer shall hire, how many, or when.

2. It is a practical ***advisory service,*** dealing only with training methods and procedures. It disseminates the latest, factual information based on ***current experience of industry.***

3. It is concerned only with training carried out right on the job within plants. ***Workers learn by doing—produce while learning!***

4. It shows employers how to ***get skilled operation from all grades of workers*** through intensive instruction at the job level.

5. It aids in the development of ***practical plans for upgrading workers*** to higher skilled jobs as rapidly as their ability warrants.

6. It renders specific aid to plants in the ***development of foremen and leadmen*** so that they become better supervisors.

7. "TWI" cooperates with the Apprentice-Training Service in promotion of attention to the ***development of all-round skilled craftsmen.***

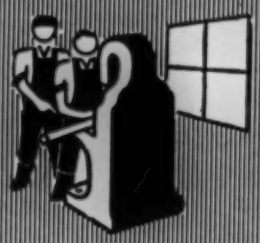
8. It works for ***closer cooperation*** between local industry and local governmental placement and training in order to meet employers' definite needs.

9. The entire "TWI" program is carried on with the advice and ***backing of both labor and management.***

10. Training Within Industry service is rendered by ***experienced industrial personnel and training experts loaned to the War Manpower Commission by industry itself.***

CONTACT YOUR NEAREST "TWI" DISTRICT OFFICE FOR COMPLETE DETAILS

U. S. GOVERNMENT PRINTING OFFICE 475869



TRAINING WITHIN INDUSTRY

OPM

LABOR DIVISION

MORE PRODUCTION THROUGH TRAINING

Meeting the Need for Skilled Workers in a New Airplane Engine Plant . . . . . Example No. 4

A LOOK AT TRAINING ON THE JOB

In the manufacture of any product, usually there are several operations on which new employees may be started. In addition, there are definite and logical sequences of operations best adapted to acquiring skills of higher order. These learning sequences almost always differ from the sequences in the manufacturing process.

With some such simple planned program, learning on the job under competent individual coaching develops not only skill but a practical understanding of related technical information.

Bringing employees together in small groups under a foreman or instructor right in the shop—where production materials are available for demonstration and where practical problems and questions can be discussed rather than lectured about—is a simple and effective method of developing originality and initiative as well as an understanding of the operation.

Supplementary education in related technical subjects is necessary to the full accomplishment of any plan of upgrading on the job for production specialists; and it is indispensable to the conduct of apprenticeship plans and the development of supervisors.

Through the process of upgrading on the job, each employee should ultimately arrive at that work which will make the fullest use of his best skill limited only by the opportunity to use it.

Preemployment training in vocational schools and preemployment work experience through Government agencies are valuable aids to beginners on production work.

C. R. Dooley, *Director,*
Training Within Industry.

Meeting the Need for Skilled Workers in a New Airplane Engine Plant

An application of in-plant training principles useful in small and large plants

Prior to 1936 the Wright Corporation's parent factory at Paterson, N. J., had expanded conservatively. In that year its working force numbered 2,900. During the last 5 years, however, expansion has taken place on a much broader scale and the Paterson plant now has 18,000 workers.

Early in 1940 the Wright Corporation contracted to deliver every month 1,000 airplane engines of advanced design, in addition to previous commitments of similar proportions. An entirely new factory devoted solely to the manufacture of the new engine (a twin-row, 14-cylinder job rated at 1,700 horsepower) and located in the Midwest was decided on. Lockland, Ohio, was selected as the site of the new plant.

Training as a Policy and a Solution

The manufacture of the Wright airplane engine is almost entirely a precision operation. Most of the work is done to very close limits and rigid inspection is consistently maintained. Most operations are carried out to 2 ten-thousandths of an inch, and the final honing operation in cylinder grinding is to two-millionths of an inch. The phenomenal expansion of the Paterson plant accompanied by a continual improvement of the engine has been feasible largely because intensive training has qualified large numbers of unskilled persons to perform production operations at the high standard required. Faced with the impossibility of obtaining skilled craftsmen in sufficient numbers, the Corporation was compelled to resort to breaking down skilled jobs into production operations and to training unskilled workers to perform them.

In consequence, training in the plant has been intensive and consistent. This began in a small way and its scope was broadened as the need for production grew. It has made possible the assimilation of large numbers of persons without previous experience, and its value is generally recognized throughout the organization. An outstanding feature is an apprenticeship system which is a model for the industry.

With this background, the training function was cast for an important role in projecting the Lockland plant. Thus, the training school began under good auspices—traditional acceptance of training throughout the parent organization and a backlog of valuable techniques originated in the Corporation.

The 10,000 employees needed to operate the plant in January, 1942, when it is running at full capacity, break down roughly into these groups:

8,000 in the machine shop.

1,000 in the nonferrous foundry.

1,000 in the 80 test cells.

The Wright Corporation's approach to its training problem embraces all the phases of a balanced training program essential to good results. These features include:

Breakdown of skilled jobs into production operations.

Analysis of each job for production and teaching purposes.

Forecast of number of employees required for each operation (by progressive stages) until the plant is manned to capacity.

Preemployment training of machine operators.

On-the-job training of machine operators.

Consistent upgrading policy.

Apprenticeship training.

Supervisory training.

Forecast of Manpower Requirements

A detailed study disclosed the number of operators needed for each job and for each of the several stages of getting the plant into production—from the opening day to the date when normal output is anticipated. Thus, the month-by-month manpower needs have been projected for each departmental operation—from June 1941 to January 1942. The chart which appears as Exhibit I is a typical forecast. It was made in March 1941 and compares the number of employees who will be needed in March 1942 with those actually on the pay roll in March 1941.

Exhibit II illustrates another phase of the study. The number of men needed for each of 74 machine and unit operations has been determined on the basis of manufacture in 100-engine units. The charts compare graphically the number of men needed for capacity output with those hired at the time the chart was made.

The complete organization was mapped at the outset, and supervisory needs projected as well. Over 200 supervisors and other key men were brought to Lockland from Paterson and other Wright Corporation factories early in the year, and other individuals at this and higher levels have been selected for eventual transfer.

The Lockland organization took form early in 1941 on the basis of forecasts. Throughout it has been recognized that it is not possible to anticipate final needs exactly and, for this reason, the organization plan has been kept flexible in order that it may be adapted to changed requirements and new developments. However, the basic plan prevails at all times, and it is a determining factor in all production and manpower schedules.

Employment Procedure

Announcement of the building of the large Wright plant attracted a flood of applications for employment from the time of the first announcement. The employment procedure is more extensive than is customary where large numbers of new employees are being hired at one time. The entrance procedure embodies investigation and testing designed to reveal the applicants who give promise of reliability and other stable characteristics. No interviews are held until the application has been completed by the applicant and classified by the personnel department according to the job for which the person appears best suited. Applications may be obtained in person or by mail.

The preliminary interview at the Wright employment office is held by appointment. If the applicant passes this first face-to-face contact, he is referred to the Occupational Testing Department to be tested in one of these three groups:

1. *Clerical:*
   - (*a*) Intelligence.
   - (*b*) Temperament.
   - (*c*) Clerical, typing, or stenographic skills.
2. *Mechanical:*
   - (*a*) Intelligence.
   - (*b*) Temperament.
   - (*c*) Mechanical ability.

   } Written test.
   - (*d*) Performance in mechanical ability—manual test.
3. *General:*
   - (*a*) Intelligence.
   - (*b*) Temperament.

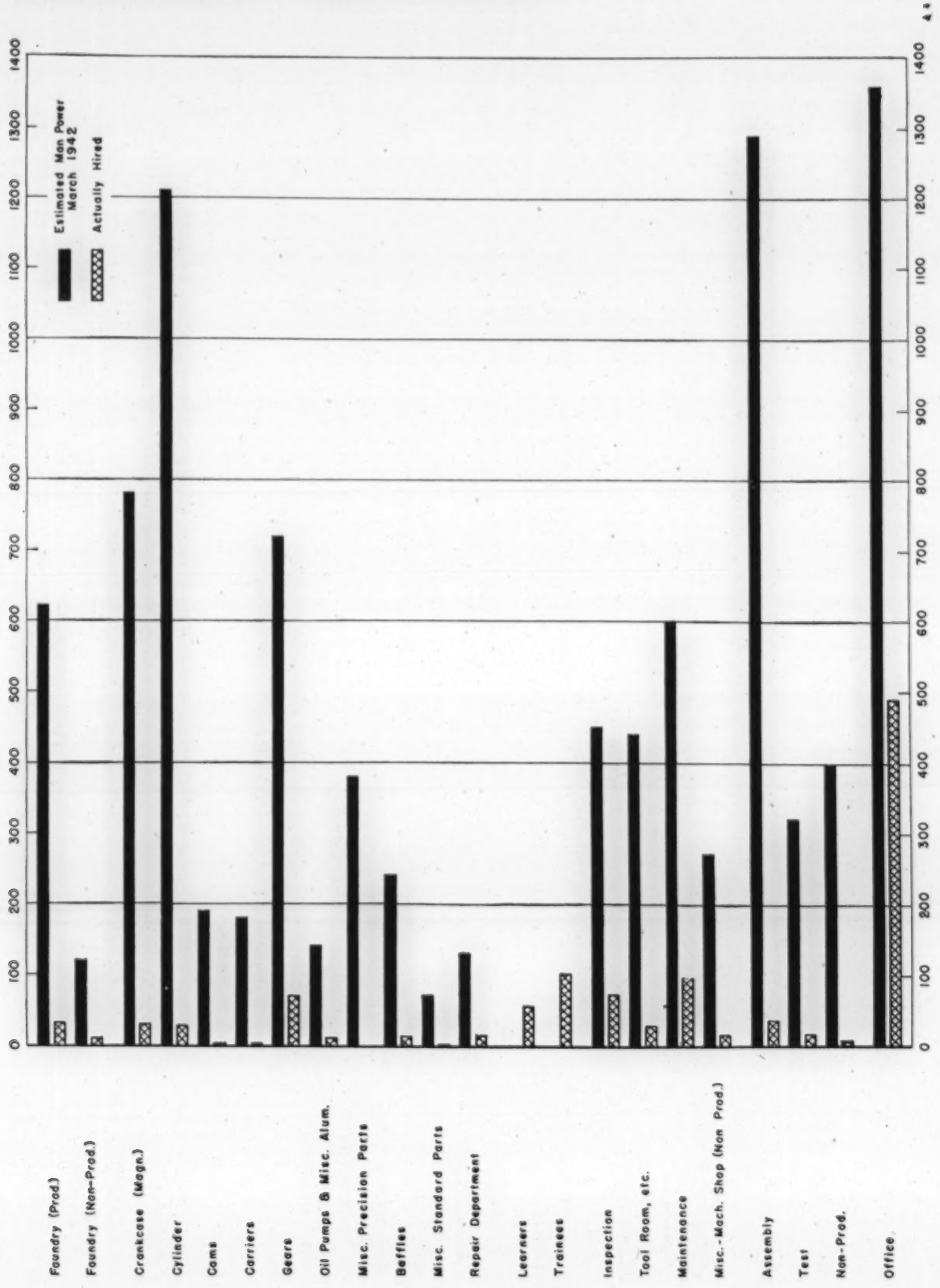
The employment supervisor then has the following four-part picture of the applicant who survives the test: (1) Application blank, (2) work record, (3) interview, and (4) test results.

When a department head requisitions personnel, the employment supervisor refers to him candidates who have been selected according to the four-part record. At this final interview the applicant is either accepted or rejected for employment. Those who are accepted and who take jobs are then examined by the company's physician, photographed, and fingerprinted. The Corporation's personnel card appears as Exhibit III.

Applicants for jobs in the Engine Assembly and Engine Testing Departments (where special training is necessary) are recruited through the Automotive High School of the Cincinnati public schools. The school checks applications for prerequisite training (graduation from a high school or vocational school, or several years' experience on internal expansion engines). Satisfactory applicants are referred to

EXHIBIT I

Typical periodic forecast of manpower requirements.



the Ohio State Employment Service to be tested for mechanical aptitude. Those who qualify are sent to the Automotive High School which administers the Otis Intelligence and the Humm-Wadsworth Temperament tests. Physical examinations are then given by the Wright physician.

Vocational School Preemployment Course for Machine Operators

The Cincinnati industrial area provides preemployment training in Lockland, Middletown, St. Bernard, and Norwood, as well as Cincinnati, and of these opportunities the Corporation makes excellent use.

The Wright program is an outstanding illustration of the favorable results that grow out of constructive cooperation between a defense manufacturer, the municipal school authorities, and the State Employment Service. Arrangements for adapting preemployment training to Wright needs were made with all of the schools in the immediate region.

The Cincinnati Mechanical Vocational School—part of the Cincinnati public school system—operates an intensive 4-week training program for prospective machine operators for the Wright Corporation. Candidates are selected and trained according to Wright standards and needs. The first week is devoted to related instruction: Blueprint reading, shop mathematics, and the use of measuring instruments. The succeeding 3 weeks are spent in learning to operate a particular machine. The first group began training June 1. Each week 50 men complete the course. From this source and from the Corporation's own preemployment training school, it is expected there will be provided 4,000 machine operators and about 1,200 for maintenance, the job shop, and various other operations—5,200 in all.

The Company's Own Preemployment Course for Machine Operators

Since January 1, 1941, the Corporation has been conducting a preemployment training school of its own for machine operators. It is referred to in this account as the Wright Training School. From the time the school was opened until production operations began in June, the course was of 3 months' duration. When the plant was opened, the course was intensified and the training period reduced to 4 weeks. Those trained are especially selected men and some of the graduates, it is expected, may become lead-men and set-up men.

As in the case of the parallel course at the Mechanical Vocational School conducted simultaneously for the same purpose, admission requirement is graduation from high school or vocational school. A large proportion of those attending have spent 2 or more years in college. Many had previous experience in machine shops, but in most cases this dates back 10 years.

Only those who showed capacity for leadership were admitted to the 3-month course. From this group, following completion of the training period, have been selected 100 leadmen to supplement the supervisors brought from the parent plant at Paterson.

Men of the same caliber are being chosen for the present shortened 4-week course. The Corporation's own preemployment training at Wright School and the public school course at Mechanical Vocational School will feed 100 beginning machine operators into the Wright factory each week until the full quota of 5,200 required to man this department of the plant has been filled.

The training staff of the Wright School numbers 30 instructors and is headed by the factory Supervisor of Training and an assistant. From the Corporation's best machinists are chosen as instructors those who have capacity to teach others. They have been trained in the technique of teaching as well as in the most efficient operation of the machines. Each is in charge of a group of machines and the trainees learning to operate them.

The Training School shop is equipped with the following machine tools which are the ones most used in the plant: Internal, external, surface, and tool grinders; turret and engine lathes; screw machines; vertical and horizontal milling machines; radial and sensitive drills; gear cutters and gear hobbers. The machine tools are new, and the men work on rejects of the engine parts they will machine in actual

EXHIBIT II

Comparison between number of men at work and those needed, based on one hundred engines to be manufactured.

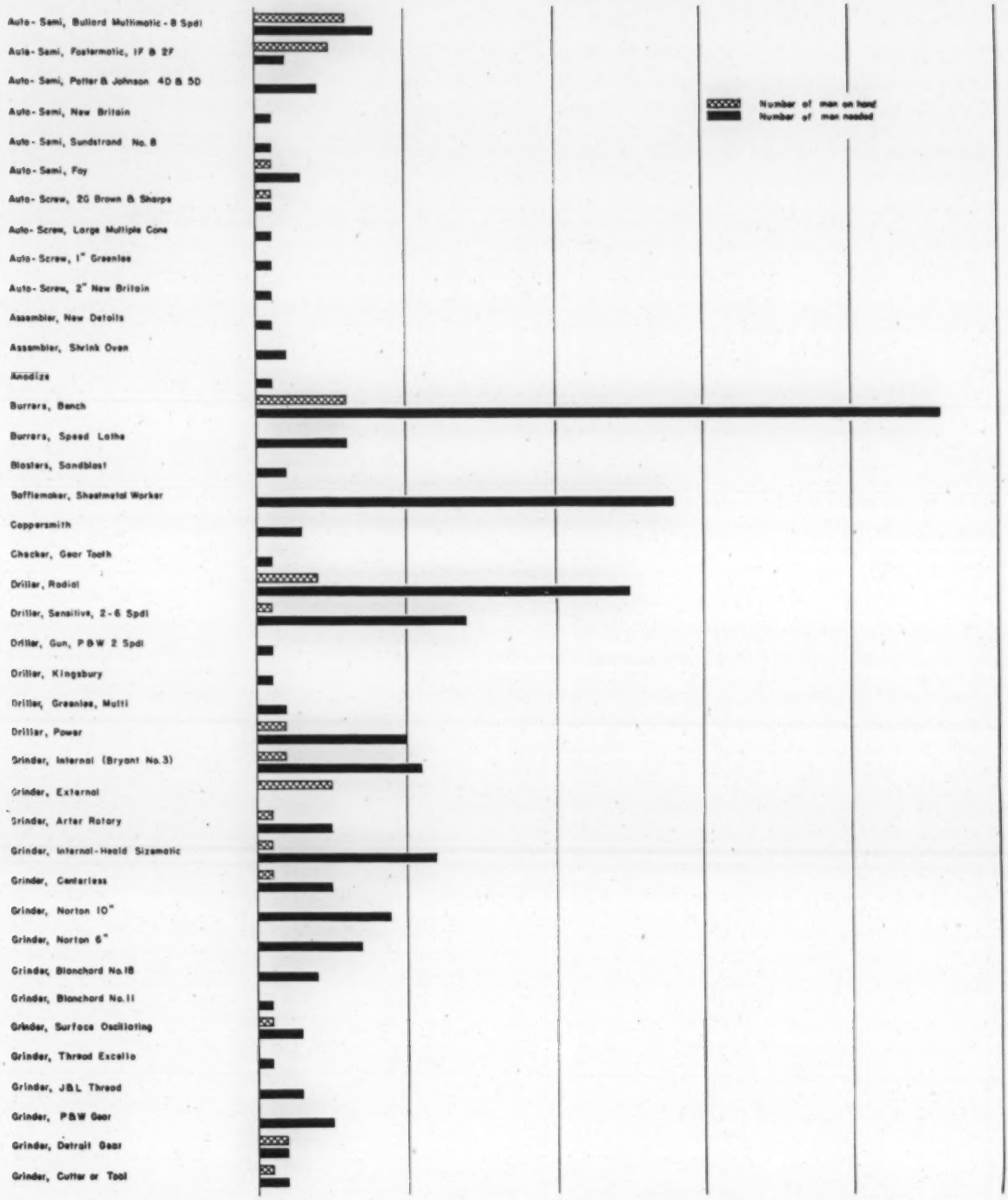
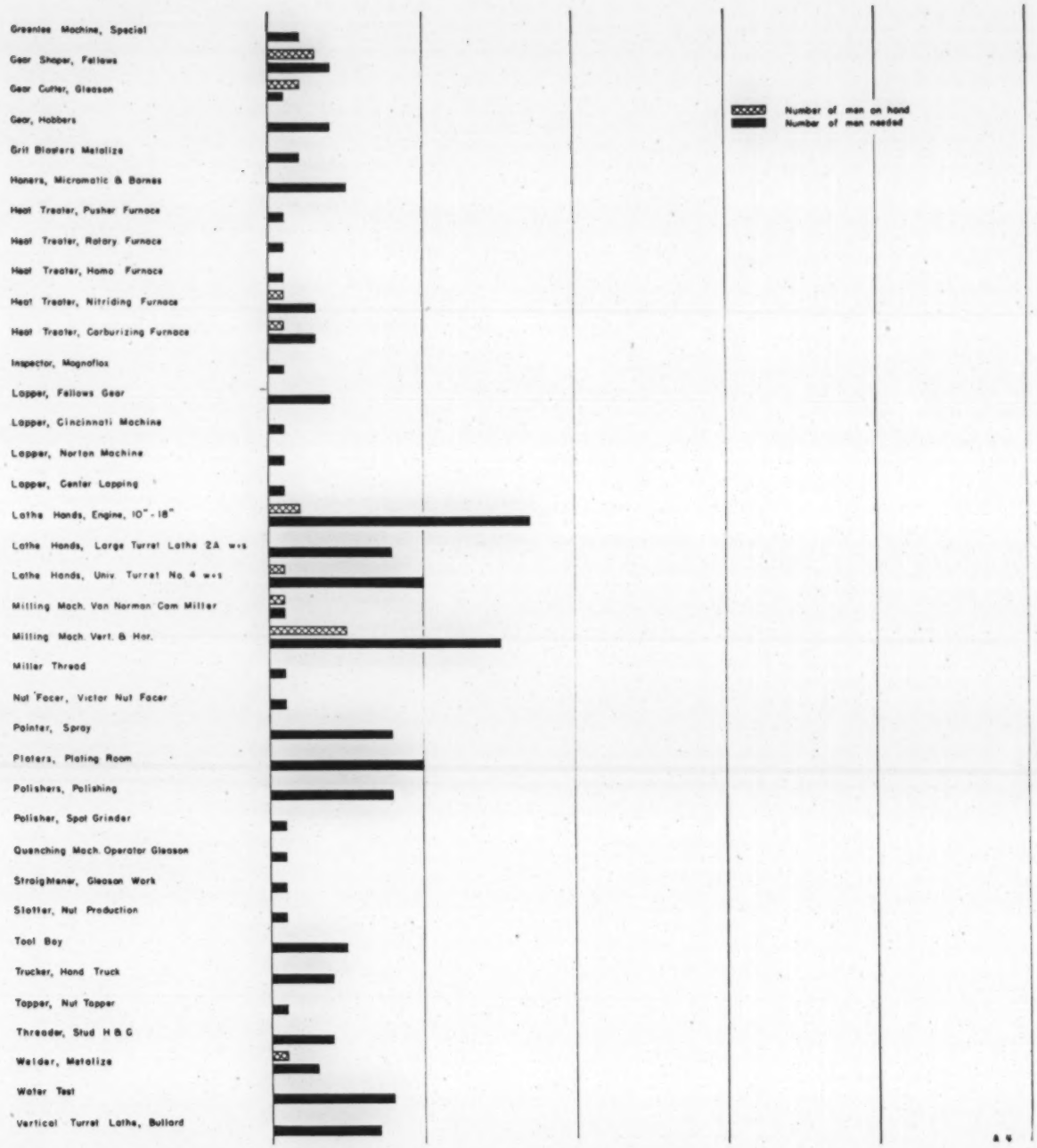


EXHIBIT II—Continued

Comparison between number of men at work and those needed, based on one hundred engines to be manufactured.



production. The factory environment is reproduced as closely as possible.

The first week of training is devoted to related subjects: Blue-print reading, use of measuring instruments, shop mathematics. The next 3 weeks are spent in learning how to operate the machine for which the beginner is being trained. Each trainee is rated daily by the instructor. The backbone of this training is the standard operation sheet which lists the operations the trainee must go through in order to perform the work and acquire skill most rapidly, and turn out consistently good work. Each of these sheets is based on a detailed analysis of the job from the teaching standpoint. Exhibits IV and V illustrate standard operation instruction sheets.

These trainees receive no compensation. Those taking the 3-month course were paid from 35 to 55 cents an hour according to the stage of their training but the long course had been discontinued as previously noted.

On-the-Job Training of Machine Operators

Following completion of the preemployment course at Wright School or Mechanical Vocational School, the trainee is given on-the-job training on a machine or operation in the production line under the guidance of an experienced machine operator. After 6 to 8 weeks spent in this fashion, the trainee qualifies as a machine operator. From then on, he is a regular operator under departmental supervision.

The manner in which the trainee is introduced to his foreman, lead-man, and the machine operator who instructs him was covered in detail with these members of the supervisory force when they were being trained. The major points are given in "Directions for Supervisors" which follow:

"When a learner comes to work in a department, the supervisor or foreman should see that he is properly introduced to the lead-man.

"The lead-man should interview the learner to determine his qualifications for the job.

"Company rules, when and where he received his pay, and other information on factory routine should be explained to him.

"The lead-man should then introduce the beginner to the machine operator who is to teach him. As his sponsor, try to make him feel at ease. Remember you have a teaching job to do. The more a learner feels at home the more receptive he is to instructions.

"Explain to him these points: The part of the work-order system that applies to his job; where the tool crib is located; how tools, operation sheets, and parts drawings are withdrawn on checks.

"Emphasize the necessity of always keeping surroundings clean and orderly.

"Give the learner a list of the tools he will need.

"Treat him as you would want to be treated."

These instructions are reminders of points stressed with lead-men when they are being given their earlier training in how to teach.

The directions are handed to the lead-man by his foreman who received them from the plant superintendent. This is done to inspire recognition throughout the supervisory force that training is an integral part of the production operation.

Training for Foundry Workers

The foundry is divided into three departments: Core Shop, Mold Shop, and Cleaning Room. The essential requirements for workers in the last two departments are good health, physical fitness, muscular development, and age between 18 and 45.

In January of this year the Corporation engaged 15 men between the ages of 18 and 22 who met those requirements. They were sent to Paterson, and trained in core-making under special supervision. Eight weeks of such training is needed to produce a first-class core-maker on cylinder-head cores.

These men returned to Cincinnati, together with certain supervisors, to serve as instructors to another group of similar trainees. Under the guidance of these instructors, new groups should be able to do core work with about 50 percent efficiency at the end of 4 weeks.

By carrying out this process for 5 to 6 months, it is expected to develop all the skilled help needed for the foundry. Also, the first group is expected to provide supervisory talent.

Training Engine Testers and Assemblers

Future employees of the Engine Assembly and Engine Testing Departments receive their first training in preemployment classes conducted by the Automotive High School after selection according to the procedure described on page 2. Two thousand testers and assemblers will be needed. The course is sponsored jointly by the United States Department of Education, the Ohio State Board of Education, the Cincinnati Board of Education, and the Wright Aeronautical Corporation.

Consisting of 300 hours' work, the course requires 10 weeks. Sessions are held 6 hours a day for 5 days a week. Each class has 100 men enrolled. The school operates on three shifts, from 9 a. m. of one day till 6:45 a. m. of the next. Every 10 weeks, 300 men are graduated. According to this schedule, the entire output of the school for 65 weeks, from January 1, 1941, to April 1, 1942, will be absorbed by the Wright Corporation. The first 2 weeks are devoted to lectures and conferences. The other 8 weeks are spent on actual assembly, disassembly, and inspection work. This shop training is supplemented regularly with short periods of classroom instruction.

Early in the year, Wright Corporation equipped the school with the same type engines as those to be built at Lockland. Other instruction aids, such as tools and pertinent materials, were also furnished. High-school instructors were sent to Paterson and trained on actual work in the shop. All expenses except salary were borne by the Corporation, and instructors from the Wright organization helped the high school set up the course.

The best 75 men in the first group of 300 graduates were selected to become engine testers and are being trained accordingly. The other 225 received training as engine assemblers and disassemblers.

Upgrading

The Wright Corporation's policy is to upgrade employees whenever possible. However, during the expansion from 2,900 to 18,000 employees, the problems have been not whether to upgrade or not but where to find enough employees capable of being upgraded and how to provide enough supplementary job training to prepare them for upgrading. In many instances the drain on certain departments for men to fill better jobs had been so great that the practice was stopped temporarily at various times during the last 3 years.

The upgrading policy at the Lockland plant as presently defined embodies the following features:

The nucleus of the supervisory staff was brought from the parent plant at Paterson. This is true as well of many keymen, skilled workers, and instructors.

It is expected that all additional instructors, lead-men, and supervisors will be recruited from the work force which is now being trained.

New workers are assigned to the machines for which they received preliminary training. Most foremen are already familiar with the upgrading policy at Paterson, and it is anticipated they will not only continue the practice but do more of it. In addition, the plant management stresses the importance of upgrading and urges that it be practiced at every opportunity.

A first step in the upgrading process is that machine operators be encouraged to do their own set-up work. This additional skill is recognized by an increase in pay.

Foremen are also encouraged to practice horizontal upgrading: rotating jobs between qualified workers in order to develop a versatile and stable work force. Operators are shifted from job to job and department to department as schedules for individual parts are completed or changed. These measures, it is believed, open up opportunities for the skill of ambitious employees.

By means of a simple record, the foreman reviews the quarterly progress of every employee. This assures periodic consideration of promotion, transfer, rotation to a new job, need for special training, and possible rate revision. (See p. 11 for sample record.)

An example of the upgrading policy is the expectation that the staff for production engineering can be recruited from machine operators and lead-men. This group is already familiar with machines and their capacities,

EXHIBIT III

Personnel record form.

PERSONNEL RECORD

Name | Man No. | Date

Address | Occupation

Single / Married | Number Dependents | Nearest Phone

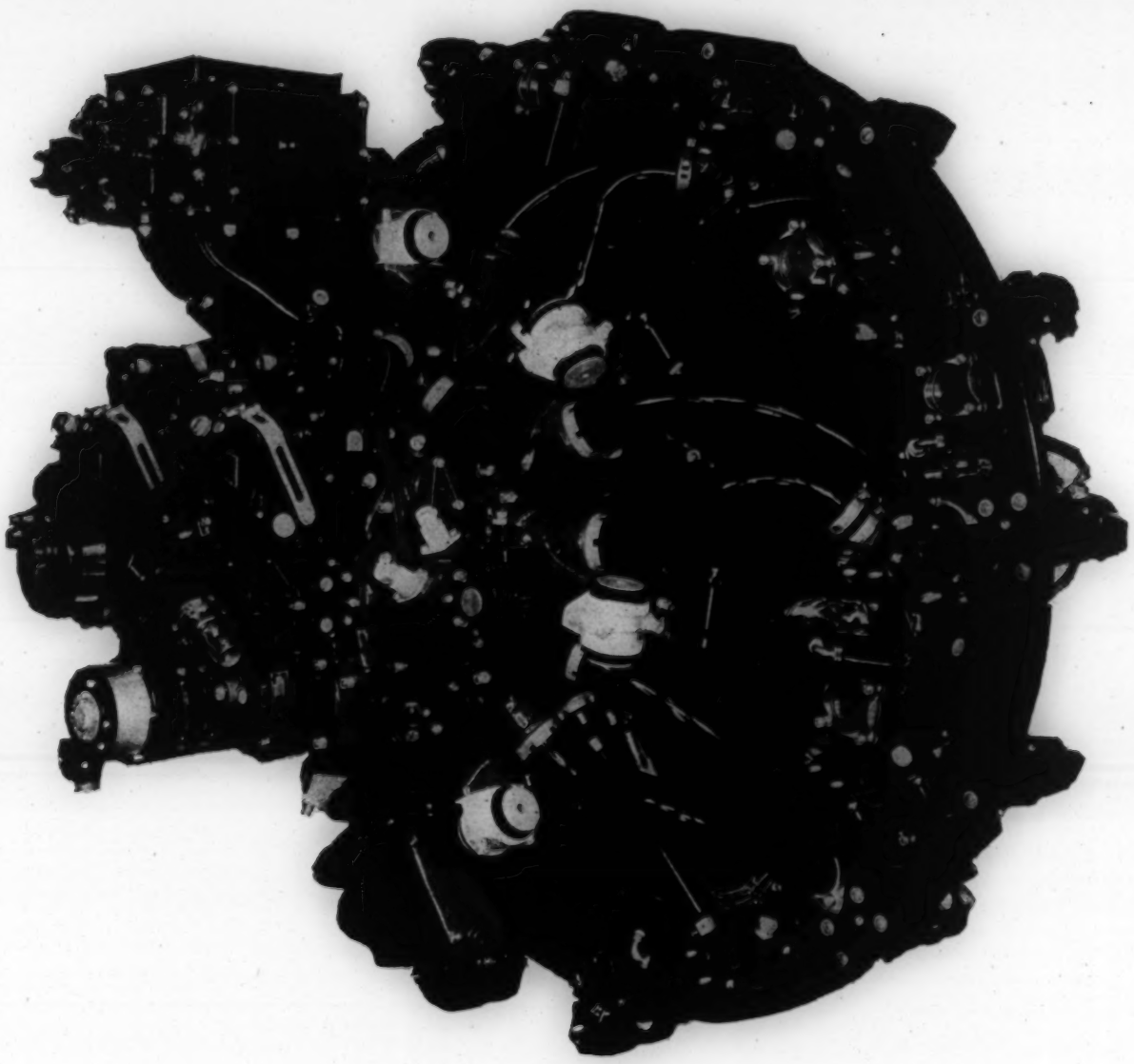
In Emergency Notify | Address

Class	Eff.	Merit Rating	Rate	Date Recom.	Date Received	Remarks	Class	Eff.	Merit Rating	Rate	Date Recom.	Date Received	Remarks

3235

Warnings - Infractions of Rules, Etc.		Education and Experience			
Date	Nature of Warning	Education	Subject	Experience	
		Grammar	Arts	Assembler	Patternmaker
		High School	Business	Coremaker	Supervisory
		Vocational	Engrg.	Drafting	Toolmaker
		College		Drill	Welding
		Technical	Air. Eng. Mech.	Grinder	
			Drafting	Inspector	
			Foundry	Lathe Engine	
			Mach. Shop	Lathe Turret	
				Milling	
				Moulding	

1,700 horsepower Cyclone 14 engine—manufactured by the Wright Corporation at the Lockland plant.



production routines, and operation sheets, and has had shop experience.

Apprenticeship Training for Craftsmen

A few craftsmen are being brought from Paterson to take over skilled jobs on tools, jigs, fixtures, and similar operations that depend upon all-around machinists and other craftsmen. It is planned to set up a formal apprenticeship program on the lines of the long-established courses at the parent plant.

The Supervisory Staff

The new plant is being directed by some 350 supervisors and keymen brought from the Paterson parent factory and other Wright plants. They were transferred or selected well in advance of the opening of the Lockland unit. The other 250 men are being drawn from those employed in the Cincinnati area. This will make a total of some 600 keymen in training for supervision of the new workers. On the basis of full enrollment, the Corporation is planning a ratio of approximately 1 supervisor to 15 operators.

Looking ahead, the Wright Corporation plans to conduct a series of conferences for supervisors patterned after the program at Paterson, with local adaptations. There will be considerable emphasis on labor relations as well as on methods to promote efficiency in production. In addition, there will be training in "How to Instruct." All supervisors are expected to be familiar with the employee rating procedure and the necessity of providing accurate information for each grievance, layoff, discharge, or disciplinary case. Central records on these items are maintained in the new works.

A significant feature of the program is its sponsorship by the works manager of the new plant. This represents supervisory training at its best: it becomes an integral part of the day-by-day process. The training director will help to plan the conferences, to select the problems to be discussed, to provide conference leadership, and to assist in many other ways.

This is a continuation of the policy pursued at the Paterson plant where the general manager, treasurer, factory superintendent, manager of the license division, and other executives participate in the foremen's meetings.

EMPLOYEE PROGRESS RECORD CARD

Name No.

Occupation

Class	Eff.	Rate	Date Recom.	Date Received	Class	Eff.	Rate	Date Recom.	Date Received

EXHIBIT IV

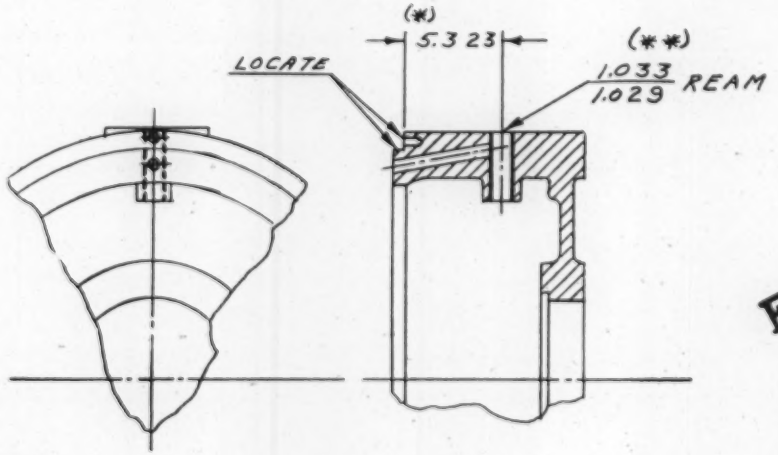
Typical instruction work sheet of machine shop operation No. 130.

TOOLS RECORDED										

PART NO.	PART NAME			PART NO.
69223	CRANKCASE-FRONT SECTION			69223
DATE	MACHINE NAME: RADIAL DRILL	MATERIAL—SPEC. NO.	FILE CLERK	SHEET NO. 13
OPER. NAME: ROUGH DRILL & REAM GOV. PAD		DEPT. NO. 203		OPER. NO. 130

CLAMP PART IN FIXTURE LOCATING ON 19.308 PILOT & .281 HOLE
MACHINE AS PER SKETCH
NOTE: CLAMP FIXTURE TO MACH TABLE WITH LOCATOR
IN HOLE "A" IN TOP POSITION.
(*) ALLOWS .015 FOR FINISH ON FLANGE FACE.
(**) PILOT DIA FOR HOLLOW MILL T-57630
(***) FIXTURE- HOLDING T-78681 MAY ALSO BE USED

TOOLS	TOOL NO.
19.308 DIA. LOCATOR DET. #21 .281 DIA. LOCATOR DET. #20 FIXTURE- MILLING	(***) T-57694
1.000 DIA. BUSHING DET #7 1.032 DIA. BUSHING DET #8 J16- DRILL	T-57629
GAGE- PLUG 1.029 - 1.033	T-49133
DRILL-1" DIA.-13" LONG	2113- T-30
REAMER- 1.0325 DIA. 19" LONG	T-73669



For Reference Only

DO NOT SCALE SKETCH.

WAC FORM 422	STANDARD OPERATION INSTRUCTION SHEET	PREPARED BY CORDES	SKETCHED BY R.C. BARHORST 5-6-41

EXHIBIT IV—Continued

Typical instruction work sheet of machine shop operation No. 130.

Operation: Rough Drill & Ream Governor Pad, Using Radial Drill

1. Explain what the fixture is and its importance in producing a good part.
2. Pick up part and place it on machine, explaining how the part may be mutilated if not properly handled.
3. Clean the fixture thoroughly, explaining why this work is performed and what would happen if there were dirt or chips left on same. Explain the use of air hose.
4. Clean the part thoroughly, explaining why this is done and what might happen if dirt or chips were left on the part.
5. Wipe the fixture with a piece of cloth; give same explanation as above.
6. Wipe the part with a piece of cloth; give explanation.
7. Place the part on the fixture properly; explain the right and wrong way of doing this.
8. Tighten four clamps properly. Explain the proper tools to be used and how tight the clamps should be; what might happen if improper wrench is used when tightening clamps.
9. Change the protection boards. Explain to the learner why these boards are used and results if not used properly.
10. Wipe hands with cloth.
11. Select 1" drill and place in magic chuck. Explain how a magic chuck works and what different tools can be used with it.
12. Place the 1" drill bushing in the fixture, explain why a bushing is used and what will happen if not properly used.
13. Explain the spindle speed to be used and how to select it.
14. Explain the Feed.
15. Drill 1" hole. Explain why air blast is used. "To keep chips from freezing drill fast to bushing." What difficulties may arise if drill does freeze fast.
16. Select 1 3/32" reamer. Remove drill from magic chuck and insert reamer. Give full explanation of same.
17. Remove drill bushing from fixture and insert reaming bushing.
18. Ream hole to 1 3/32" diameter. Explain spindle speed and proper feed.
19. Remove reamer from magic chuck and bushing from fixture.
20. Loosen and clear four clamps.
21. Remove part from fixture.
22. Use air hose to blow chips from part.
23. Gage reamed hole, explaining the Go and No-Go end of plug gage, referring to operation sheet for sizes.
24. Place part on skid, explaining why it is necessary to use care when performing this part of operation.

The elements in this operation are numbered from 1 to 24. Be sure that the learner understands the First one before trying to teach the Second, and so on until you are satisfied that the learner is thoroughly familiar with the complete job.

EXHIBIT V

Typical instruction work sheet of machine shop operation No. 750.

B FORM 508 5M-8-38 WRIGHT AERONAUTICAL CORPORATION FOR REFERENCE ONLY

STANDARD OPERATION INSTRUCTION SHEET

PART NO.	PART NAME		PART NO.
67565	COVER SUPERCHARGER REAR		67565
DATE	MACHINE NAME	MATERIAL SPEC. NO.	SHEET NO.
OCT. 3, 1938	BULLARD VERT. TURRET LATHE		75
OPER. NAME		DEPT.	OPER. NO.
FACE AND CHAMFER HUB (FRONT)		NO. 203	750

HOLD PART IN FIXTURE AND CHECK	FIXTURE HOLDING	
(THREE) POINTS WITH FEELER	WITH DET. #26 AND	
	(2) DETS. #28	T-13639
ROUGH AND FINISH FACE HUB 2.835-2.839 FROM		
FLANGE FACE	GAGE FLUSH PIN	
	2.835-2.839	T-13706
CHAMFER BORE 45° TO 2.860-2.900 DIM.		
FORM RECESS 3.00 DIA. .56 WIDE .94 DEEP		
FROM FACE OF HUB FORMING .06 RADIUS IN CORNERS		
NOTE: BREAK SHARP EDGES		

PREPARED BY BORNKAMP

EXHIBIT V—Continued

Typical instruction work sheet of machine shop operation No. 750.

Operation: Face Chamfer and Recess Hub Front, Using 36" Bullard V. T.

1. Explain what the fixture is and why it is used to produce this part. Blow off the fixture using the air hose and wipe dry with a piece of cloth. Explain why this work is done.

2. Remove burrs from part of work which is fit on fixture.
   Explain the reason for doing this.
   Wipe the part using a piece of cloth.
   Place the part on the fixture taping to seat properly.
   Place the clamps in position and tighten properly. Explain what might happen if the clamps are not tightened properly. Also what wrench is used.

3. Check the part with feeler gage at necessary points, explaining the reason for this check and the proper gage to use.

4. Index the tools to proper position explaining the function of the controls necessary to bring this tool to the proper location.

5. Give a thorough explanation of the proper Speed and Feed and how to select the same. Explain the clearance and rake of the tool used to perform this part of the work.

6. Rough face hub. Explain just how much stock to remove on this cut.

7. Reset tool. Explain the mechanism of the controls used in resetting this tool.

8. Finish face hub to 2.835 - 2,839 dimension from flange face.

9. Reset tool chamfer bore 45° to 2.860 - 2,890 Dim. Explain the use of the tools used to check the dimension of this chamfer. Wipe piece dry using a piece of cloth.

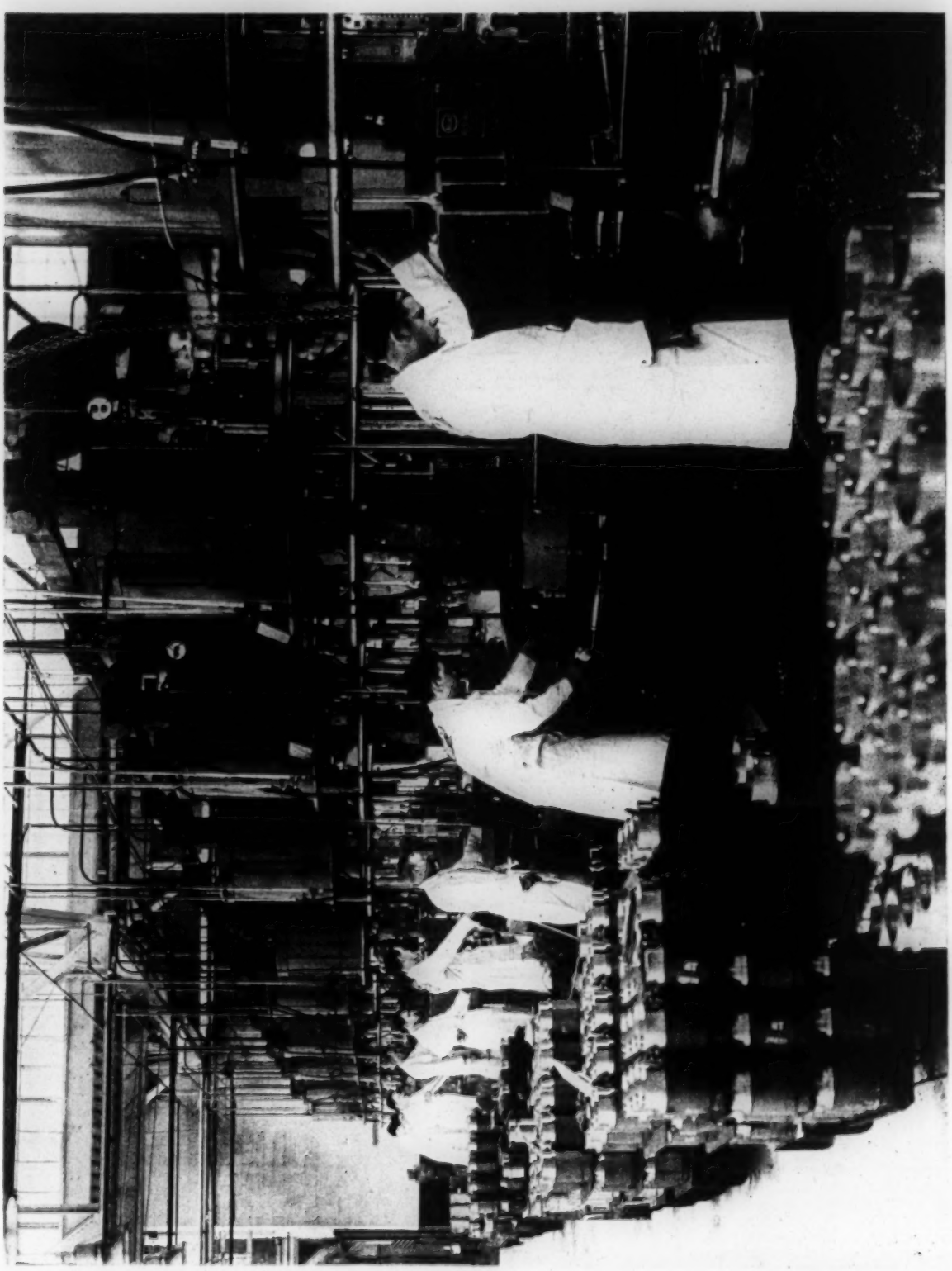
10. Use flush pin gage to check 2.835 - 2,839. Explain how flush pin gage must set square with all chips and dirt removed from under the bore and pin.

11. Index tool and set in proper position to form .560 wide recess forming .060 radius in corner to 3" Diameter. Holding .940 dimension to bottom of recess.

12. Give full explanation of the tools used to perform this part of work. Break sharp edges. Explain thoroughly how the edges should be broken. Repeat the above instructions as many times as necessary for the learner to understand thoroughly the operation of the machine, the tools, and the finish required.

The elements of this operation are numbered from 1 to 12. Be sure that the learner thoroughly understands number one before trying to teach him number 2, etc.

Rough machining cylinder barrels from rough forgings on Bullard Multa-matics in Wright Corporation plant.



and efficient business to have each worker make the fullest use of his best skill up to the maximum of his individual ability. Only through such use of the intelligence and skill of the Nation's manpower will production keep pace with the Victory Program.

OFFICE OF PRODUCTION MANAGEMENT

Labor Division

TRAINING WITHIN INDUSTRY

District Offices

For information or advisory assistance concerning training problems, apply to the Training Within Industry district office nearest you.

Atlanta, Ga., Georgia School of Technology, 225 North Ave. NW. (Hemlock 6890)

Baltimore, Md., Room 3106, Baltimore Trust Bldg. (Plaza 1654)

Boston, Mass., Room 1033, Park Square Bldg. (Hubbard 0380)

Chicago, Ill., Room 1441, 20 North Wacker Drive (Andover 1744)

Cincinnati, Ohio, Room 840, Union Trust Bldg. (Cherry 3740)

Cleveland, Ohio, Room 797, Union Commerce Bldg., 925 Euclid Ave. (Cherry 2984)

Denver, Colo., Room 518, U. S. National Bank Bldg., 817 Seventeenth St. (Keystone 4151–596)

Detroit, Mich., Room 610, Boulevard Bldg., 7310 Woodward Ave. (Trinity I–5520)

Houston, Tex., Room 3201, Gulf Bldg. (Fairfax 9842)

Indianapolis, Ind., Room 1428, Circle Tower Bldg. (Market 9411)

Los Angeles, Calif., Room 452, Roosevelt Bldg., 727 West Seventh St. (Trinity 2104, 2105)

Minneapolis, Minn., Room 1800, Rand Tower Bldg. (Bridgeport 7591)

Newark, N. J., Room 601, 605 Broad St. (Mitchell 2–1114)

New Haven, Conn., Room 513, 152 Temple St. (6–5186)

New York, N. Y., Room 2026, 11 West Forty-second St. (Pennsylvania 6–0486)

Philadelphia, Pa., Room 2301, 12 South Twelfth St. (Walnut 6820)

Pittsburgh, Pa., Room 360, Administration Bldg., Carnegie Institute of Technology (Mayflower 2600)

Portland, Oreg., Room 1006, Bedell Bldg. (Broadway 0380)

Raleigh, N. C., Raleigh Bldg., Fayetteville and Hargett Sts. (2–3306)

St. Louis, Mo., 603 Shell Bldg. (Central 4206)

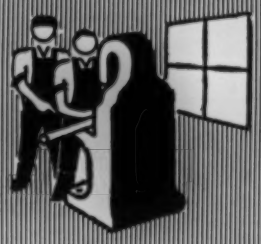
San Francisco, Calif., Room 702, Newhall Bldg., 260 California St. (Exbrook 0369)

Seattle, Wash., Room 957, Stuart Bldg., Fourth and University Sts. (Eliot 6404)

Headquarters Office

Fourth Street and Independence Ave. SW., Washington, D. C. (Republic 7500)

U. S. GOVERNMENT PRINTING OFFICE 16—25303-1



MORE PRODUCTION THROUGH TRAINING

Training for Quick Production in Heavy Manufacture . . . . . Example No. 6

TRAINING WITHIN INDUSTRY

OPM

LABOR DIVISION

OFFICE OF PRODUCTION MANAGEMENT

Labor Division

TRAINING WITHIN INDUSTRY

Washington, D. C.

Although training on the job is considered the quickest method of manning a plant with competent workers (in the present emergency), beginners do not always turn out usable production as soon as they might. Some companies have solved this problem by coordinating very closely the training procedures with production assignments.

An example of this is the LeTourneau Company's practice in its new plant at Toccoa, Ga., where heavy earth-moving equipment is built and military shells are machined. Ninety-five percent of its present 1,500 employees have come from the hill country in the new plant's vicinity. They had no previous industrial experience, prior to joining the company, but they turned out usable production as they were being trained.

Through the courtesy of the LeTourneau Company, this account of its methods is made available to defense contractors who have similar problems.

C. R. DOOLEY, *Director,*
Training Within Industry.

Training for Quick Production in Heavy Manufacture

The LeTourneau Company is a 12-year-old organization which began operations in California with 22 employees. Expansion of the demand for the earth-moving equipment it produced led to building a plant at Peoria, Ill., in 1935. In 2 years another factory was opened in Peoria; 2,000 men are now employed in the 2 units. The Peoria plants are so located because the original LeTourneau models are designed to be pulled by Caterpillar tractors which are also manufactured there.

The Toccoa, Ga., plant was erected in 1939—in 4 months hills were leveled to provide a ground area, machine tools were built, and the first 200 of the present 1,500 employees recruited and trained. The factory handles large defense orders for the machining of 155-millimeter shells in addition to making the heavier models of the LeTourneau line (15 to 50 tons), many of which are self-propelling. The new plant was placed in Georgia, one factor being that labor was available.

The equipment LeTourneau manufactures is used in making highways, building dams, leveling ground for airports, and also in strip-mining. Production at Toccoa consists in the main of cutting and forming steel; welding and fabricating steel; machining gears, axles, hubs, wheels, dies, and universals; assembling transmissions; and foundry and forge-shop work.

Training Problem

The Toccoa area offered plenty of men, but it provided no persons with skill or even experience in any sort of industrial work. Therefore, training became a major problem in starting production at the new plant.

Training at LeTourneau is never looked upon as being a finished job. The need for more training constantly arises because of expansion of productive capacity; another reason is the training required by the organization's upgrading policy. Consistent observance of standards for training is a basic part of LeTourneau's business thinking.

Preparing outlines of job requirements is the first step in analyzing the job. These schedules determine the qualifications to be sought among applicants. This procedure, together with the steps in employment and testing, and the relation of job classification to the wages paid are described in detail later in the report (p. 8), as these policies form part of the basis for the company's training program.

Preemployment Training

Local facilities for preemployment training are limited to the Toccoa Falls Institute which offers a small amount of shop training, the Georgia School of Technology which furnishes a few engineering students through its Cooperative Plan, and the NYA Work Centers. In the last, only minimum training is given but the company is taking all the men available from the welding and machinist schools. This leaves a large part of the training problem up to the company.

Training Production Specialists

Employees hired for straight production jobs, as machine operators, painters, forge-shop men, assemblers, and mechanics, are given their first job instruction by the subforemen.

A new man starts work by doing odd jobs for a day or so. This work consists of sweeping, moving materials, and the like. During this time he becomes slightly familiar with the layout of the shop and the machinery on which he will work. The beginner's work on a machine starts immediately with *productive work*. An experienced worker sets up a machine and the new employee is taught a simple cutting operation. This might consist of learning how to turn on and off the machine, watching the cutting operation, applying the caliper or micrometer, stopping the machine, and removing part.

Upgrading Operators

As skill is attained on one part, the new man is given more difficult parts to machine. If the employee has the ability, he is upgraded until he is able to do set-up work and machining on a wide variety of operations.

Machine operators in the production shop are considered as a recruiting source for beginners in the crafts, thereby reducing the training time of men who may be developed as beginning craftsmen.

Welding Demands

The manufacture of the heavy models of the LeTourneau line is an operation which requires a large number of welders—almost one-fifth of the men at Toccoa are welders. Less than one-tenth of the welders have had previous welding experience. Almost 99 percent of the welding at Toccoa is electric welding, and about 1 percent acetylene welding. All production welding is done on special analysis magnesium steel, generally from one-fourth to one-half inch in thickness, although the complete range is from 12 gage to 3 inches.

All the welding is done in a horizontal position through the use of large jigs and fixtures. The largest jig which the company uses holds a piece of material 45 feet long, 12 feet wide, and 13 feet high. The jig is so designed that this large piece may be turned completely around in order that all welding may be done in the horizontal position. Of course, both butt and L welding are still used.

Welding School

The inexperienced man is placed in the Welding School for 2 weeks, or until both he and the welding instructor are satisfied that he has the ability to become a welder. The purpose is not to make finished welders out of the men, but to teach them the fundamental principles of welding and to show them how to use the different types of rods in all the various positions. The students should receive sufficient instruction and practice in flat and fillet welding to be able to handle simple production jobs satisfactorily.

Each new man spends from 10 days to 2 weeks in the Welding School depending upon his own ability to learn the necessary techniques for an elementary production welding job in the plant.

As soon as a man in the Welding School has completed these problems and feels he can pass the apprentice test on welding, he is allowed to take the test. If a man cannot pass the test at the end of 2 weeks, he is given a few additional days in which to practice, but usually at this stage of the game the instructor is able to determine whether or not the man will ever make a welder. If not, he is transferred to some other type of work.

In the Welding School, the men work in individual booths and on scrap material; but, as soon as they are able to complete the problems and pass the apprentice welding test, they are transferred to the small-parts welding department which is production welding of the most elementary nature. From here on the man develops just as fast as his own ability and initiative will enable him to progress through the various advanced stages of welding.

The beginning instruction and qualification tests for welders in training are shown in Exhibit I. Related instruction in welding theory is given them in night school or through a home-study course.

Roving Instructors

In all of the welding departments there are welding instructors whose duty it is to help men become better welders from both a production and a quality standpoint. For the most part, they are quite busy assisting men who request help, but it is also their duty to locate those who are receiving reject tickets on their welding and to assist them in correcting any future causes for reject welds. These welding instructors in 1 month reduced the amount of red reject tickets in the plant by over 50 percent merely by showing the men where they were making mistakes and how to correct them.

Qualification Tests

After a new welder has been in the small-parts production welding department for a few weeks he may ask permission to take the next higher

EXHIBIT I

Training for welders.

No. _____ Dep't. _____ Shift _____ NAME _____

Date Primary Instruction Began _____ Ended _____ Previous Experience _____

PRIMARY INSTRUCTION

WELD	PLATE	ROD	BEGAN	END	*GRADE	Remarks covering student's initiative, conduct, industry, adaptability, etc.
Flat	1/4	5/32,3/16,1/4				
Fillet	1/8 1/4	1/8, 3/16,1/4				
Butt	1/8	1/8				
Horizontal	1/4 3/8	5/32, 3/16				
Semi-Vertical	1/4 3/8	5/32, 3/16				
Vertical Up	1/4 1/2	5/32, 3/16				
Vertical Down	1/4 1/2	5/32, 3/16				
Over Head	3/8	3/16				
Flat Fillet	1/2	1/4				
Flat Butt	1/2	5/16				

* 90 - 100 = Excellent 80 - 90 = Good 70 - 80 = Fair Below 70 = Failing

LINCOLN LESSONS IN WELDING: GRADE _____ WELD SYMBOL: GRADE _____

TESTS FOR CLASSIFICATION				SPECIAL TESTS			
TEST	DATE	*GRADE	REMARKS	TYPE TEST	DATE	*GRADE	REMARKS

This card summarizes the beginning instruction received by a LeTourneau welder, and records the dates and results of the qualification tests which he takes.

grade of welding test. When he passes this test, he is transferred to that advanced type of work just as soon as possible and usually this is within a couple of weeks from the day he passes the test. This same procedure is followed for the next two higher grades of welding operations.

These qualification tests are, of course, based on specific LeTourneau needs. The time allowed is the standard set by the incentive system for production work.

Any welder may take the test for the next higher class occupation at any time; if he satisfactorily passes this test and his past production record is satisfactory, he will be given an opportunity to work on a higher class of work. After a man has been on the new position for a period of 1 or 2 months, adjustments are made periodically in his rate until he reaches the top rate for that new job classification.

Progress in Training

In 2 years, 300 welders have been trained by the Welding School. Two-thirds of the men are beginning welders but many of them will reach higher qualification levels. Some of the men who are now performing the simplest welding operations at LeTourneau had backgrounds of experience in welding of other types but, because of the variation in material and methods, needed more training for the particular type of welding they now are engaged to perform. They are getting that training, and on the job, while they turn out productive work.

Craft Training

Passing stringent selection tests is required of applicants for training in the skilled crafts, particularly those who wish to qualify in the future as tool-makers.

Machinist School

Most of the men trained in the regular machine shop learn thoroughly some one operation, becoming excellent operators but not all-around machinists. In the Machinist School, however, each man spends a definite amount of time on each piece of equipment or until he can satisfactorily do all the work on that machine.

The Machinist School is equipped with machine tools identical to those used in the machine shop. He is moved from one machine to another as rapidly as his attained skill will permit, until he is reasonably competent on all machines and on a wide variety of work. The varied experience this type of training covers is shown in Exhibit II. At the same time the man is given supplementary instruction in night-school classes. Acceptable second-class machinists are developed in about 2 years. In order to evaluate the training given, the company has a set of test specimens, similar to those already developed for welders and cutters, indicating those products, cuts, and machines which an employee must successfully make and operate in order to qualify as a second-class machinist. For toolmakers and die-makers an additional 2-year period is usually required.

Supplementary Instruction

Public facilities for supplementary training, like preemployment work, are lacking. Accordingly, the company is providing its own. The following courses are offered in the company's own classrooms:

Elementary mathematics.
Algebra.
Geometry.
Trigonometry.
Physics (in relation to mechanics).
Heat application:
  (*a*) Furnace and foundry practice.
  (*b*) Forge-shop and heat-treat section.
Elementary mechanics.
Elementary electricity.
Blueprint reading.
Mechanical drawing (elementary and advanced).
Theory of welding (elementary and advanced).
Time study.
Industrial management.
Psychology of leadership.

The company has agreed to offer any course or any subject requested by 12 or more employees. These courses are open to anyone. No homework is required. Each class meets for 3 hours. For day-shift employees, courses are offered from 7 until 10 p. m.; for those on the night shift, from 2:30 to 5.30 p. m. Instructors are company men who meet State requirements for instruction and who are paid for such instruction time by the State. Where the instructor cannot be certified by the State, or if for any other reason the State is not willing to pay for the time, the company bears this expense.

EXHIBIT II

Training for machinist specialists.

"LE TOURNEAU MACHINISTS' SCHOOL"

NAME _____ AGE _____ BADGE NO. _____ EDUCATION _____

MACHINES	Date In	Date Out	Aptitude Ratings*	Degree of Skill*	SUPERVISOR'S REMARKS
Lathe					
Miller					
Shaper					
Grinder					
Boring Mill					
Saws					
Tournamatic					
Turret Lathe					
Drills					

*E = Excellent P = Poor
A = Average X = Fail
F = Fair

The trainee spends a definite amount of time on each machine tool shown above, and is moved from machine to machine until competent in a wide variety of work.

Upgrading

The company's job classification plan provides a sound basis for upgrading. Semiannually, foremen review workers' earnings, merit ratings, and progress. Not only are wage increases determined at this time, but the progress of the individual employee is checked also. Results of these periodic reviews by foremen are further gone over by representatives of the industrial relations and operating departments. In those cases where it is believed a foreman has not sufficiently moved or promoted his men, a representative of the industrial relations department personally interviews such employees.

Employees are encouraged to qualify for new work; in fact, considerable pressure is now exerted in this direction because of expansion demands. In extreme cases employees who do not qualify for better jobs, who do not wish to prepare for them, and who are mediocre operators are let go. In most cases those who wish to advance form a group adequate to meet the needs. Those who are acceptable operators and who wish to remain on the same job are told that they have reached the limit of earning capacity on their existing jobs. During the first 9 months of 1941, out of 1,500 employees roughly 900 moved into higher-rated positions and to different jobs in preparation for ultimate advancement. The company is still expanding to the extent that many of its employees are in the process of being upgraded.

Supervisory Training and Development

Training of members of the supervisory staff at the LeTourneau Company proceeds at all levels—from the newest subforeman to top executives. This is part of an over-all program to expedite production and build sound employee relations.

Potential Supervisors

Each year the company selects a few men between the ages of 25 and 35 who have had at least 3 years of college training and 3 to 5 years of industrial experience. The men enter on a 12-month program during which they are trained on the job in 9 departments of the plant. At the beginning of each assignment, the new man is assigned to the lowest-rated job. His time schedule permits him to obtain a general working knowledge of the operations and problems of each department.

The schedule, by departments, is:

Welding, 1 month.
Cutting, 1 month.
Set-up, 1 month.
Production planning, 1 month.
Machine shop, 3 months (must operate—not set up—every standard machine).
Inspection, ½ month.
Standards, 3 months.
Accounting, 1 month.
Personnel, ½ month.

A card record is maintained for each such employee (Exhibit III). Foremen report on each man when he has finished his work in the respective departments. The trainee also writes a report on the department at the end of his assignment. All of these men being developed for supervisory posts are given a reading schedule and reports on books covered are required. These men attend foremen's conferences although they do not participate.

Each man is eventually placed in the department where he was best liked, and usually where he most wants to go. He starts as a regular operator and advances only on merit. To supplement this program, some experienced workers who are qualified are being trained now to meet particular needs that lie immediately ahead.

Admission to Foreman Training

Extensive studies in both the Peoria plant and the Toccoa plant have shown that successful foremen have definite characteristics not found in unsuccessful foremen. For this reason, the Industrial Relations Department has set up, on each of the company's tests, minimum requirements which a prospective foreman must reach before he is given training. This applies not only to the men in the special supervisory training program but also to the men whom foremen and subforemen wish to train as assistants.

In the latter case the supervisor who finds need for an assistant submits the names of several such men from his department to the Personnel Department. The Personnel Depart-

EXHIBIT III

Progress of "special" trainees.

SPECIAL TRAINEES NAME _____ NO. ____ EDUCATION _____

Program	Mo.	Date In	Date Out	Supervisor's Remarks
Welding	1			
Cutting	1			
Set up	1			
Machine Shop	3			
Inspection	1/2			
Standards	3			
Production	1			
Accounting	1			
Personnel	1/2			

The nine departments in which a small group of men successively receive on-the-job training in preparation for supervisors' duties. Some industrial experience and college training are necessary to qualify for the 12-months' course.

ment then checks on these men's past test grades and records, as the men must meet the minimum qualifications required of supervisors before being given any training for future supervisory positions. Tests found important in this regard cover: sociability, confidence, personality, perception, number facility, vocabulary, memory, total mental score, mechanical ability, and vocational interest. The training such potential supervisors receive is given by foremen and subforemen.

General Foremen and Key Men

General foremen and other members of the executive staff who wished to attend have been meeting weekly for 3 hours to discuss "psychology of leadership." Nearly all of the executives have voluntarily attended these meetings, which are led by the industrial-relations manager. Methods of leadership, types of people, methods of handling various types, and related problems are analyzed and discussed at these meetings.

The members of this group have now requested that the topic be replaced by "economics of leadership" and "legal phases of leadership." The company plans shortly to begin scheduling conferences directed by supervisors for their subordinates on the same subjects.

Subforemen and Foremen

These men attend four meetings a month. One of the meetings is devoted to safety, including first aid and housekeeping. It is held on company time (overtime). The conferences are led by the safety engineer who uses the National Safety Council course in addition to material drawn from local problems. Another meeting held each month is devoted to leadership in a broad sense. The following topics are covered: grievances, morale, discipline, stimulating interest.

At a third meeting, job instruction is the topic. This training runs for 20 hours. The fourth type of monthly meeting concerns company and management policy. These meetings are led by supervisors, assisted by the company conference leader.

Often tentative company policies are presented to this group for debate and review prior to adoption. Many excellent ideas have been offered, and policies are reported to be well supported and administered by the supervisory staff because of this participation. All foremen and subforemen are encouraged to take supplementary instruction in the form of night-school courses.

Job Analysis and Classification

There is a very complete program of job study and job classification working through the whole organization. It is a factor in the basis of wage payment in the plant. Also it serves as an upgrading guide to the personnel department, supervisors, and employees since it shows definitely the requirements of each position and points out the line of promotion from one job to another.

This program was worked out in cooperation with the general foreman in each department. Actual requirements were set down for every position in the department. The practice originated in the Peoria plant where it was carried out by a committee of two supervisors and two union members.

The information on the analysis sheets is transferred to a job classification sheet which is arranged for scoring. The total score for a particular occupation determines the total job classification points. The Job Requirements sheet is presented in Exhibit IV. These points are plotted and checked against existing rates as well as the community rate for all similar occupations. Following this, the base rate structure is set up and the actual level of wages may be raised or lowered at any time without disturbing the basis for the classifications. From time to time checks are made on the requirements of different occupations. Many of them are changing and it is the company's intention to keep the analyses of the different positions as well as the classifications up to date. A typical rating work sheet based on the job requirements analysis appears as Exhibit V.

EXHIBIT IV

Job requirements.

Job Name _____ Date _____

JOB REQUIREMENTS

GENERAL		MENTAL		PHYSICAL		PERSONALITY	
Sex M _____ F _____		None		HEIGHT		Extravert	
Age Pref.		Read & Write		Short		Introvert	
Race		Add & Sub.		Med.			
Nationality		Elem. Math.		Tall		Cooperative	*
Married		Blue Print		WEIGHT		Initiative	*
Single		High School		Light		Tactfulness	*
Appearance		College		Med.		Dependable	*
		Special		Heavy		Judgment	*
EFFORT		**CONDITIONS**		STRENGTH		Orderliness	*
a. Strenuous		a. Abnormal Temp.		Ave.		Alertness	*
b. Abnormal Pos.		b. Steamy		Strong		Discipline	*
c. Climbing		c. Fumes		Powerful		Executive	*
d. Pushing		d. Dusty		EYESIGHT		**TEST SCORES**	
e. Heavy		e. Hot		Normal		Perception	
f. Lifting		f. Wet		Excellent		Numbers	
g. Pulling		g. Glaring		HEARING		Verbal	
h. Light		h. Dirty		Normal		Visualizing	
i. Walking		i. Noisy		Excellent		Memory	
j. Stooping		HAZARDS				Induction	
k. Monotonous		Disease	*	Dexterity		Reasoning	
l. Standing		Accidents	*	Righthanded		Total	
m. Sitting		Strains	*	Lefthanded		Mech. Ability	

Length of Time to Learn Job _____ months

Y-151 Length of Experience Needed _____ months

Y-151 JOB DESCRIPTION _____

Number of Men Responsible For _____

Value of Equipment Responsible For $ _____

Value of Material Responsible For $ _____

Complexity of This Process * _____

Effect on Subsequent Operations * _____

Attention to Orders Necessary * _____

Knowledge of Other Operations Necessary * _____

Machines Used _____

What Supervisor Is This Job Under _____

Promotion Opportunity _____

Pay—Beginning Rate _____ ¢ per hour Top Rate _____ ¢ per hour.

Financial Incentive None _____ Direct _____ Indirect _____

Signed By _____

Note: *Write In (VH) Very High, (H) High, (A) Average, (BA) Below Average, (S) Slight.

Job Name _____ Job Class _____ Dept. No. _____

This form records the detailed description of the skills needed and working conditions existing for each job in the plant. The information is a basic step both in upgrading and in job classification.

Employment Procedure

All production operators are selected with extreme care. Preliminary interviews are given to all of the thousands of applicants who apply in person. For those who survive this preliminary interview (in some cases foremen as well as members of the personnel department take part in the opening stage), the procedure is then as follows:

1. Personality, mental, and mechanical ability tests are given to those individuals selected during the preliminary interview, and a test analysis profile sheet made up.

2. Applicants with satisfactory test scores are given physical examinations, and references are checked.

3. The profile sheet of the applicant who survives these first steps is then compared with the standard profile sheets for those occupations in which there are openings. Over a period of time, standard profile sheets are being developed for each occupation to show the maximum and minimum grades for each part of each test. For example, the maximum score and the minimum level of acceptability for welders are:

	Maximum	*Minimum*
Personality (total of scores)	100	60
Confidence	20	13
Number facility	100	40
Induction	100	40
Mental (total of scores)	700	300
Mechanical Ability I	102	70
Mechanical Ability II	60	30

4. Successful applicants are placed on the payroll. Start cards, insurance records, and social security records are filled out. The men are fingerprinted and the personnel manager or his assistant gives a preliminary orientation talk.

5. The new employee is then taken by one of the assistants in the Personnel Department to the hospital for a short talk on first aid; to the Safety Engineer's office, where instruction is given on safety; to his time clock, where he is shown how to punch his time card properly; to the company store, where he is told how he may purchase safety clothing and tools; to the toolroom, where he is shown how to check out tools with the tool checks which have been given him; to rest rooms; and then to his new supervisor, who first makes sure he has received and read a copy of the shop rules. The supervisor introduces the man to his fellow workers and then begins to train him on his new job.

EXHIBIT V

Job rating work sheet.

JOB RATING WORK SHEET

JOB _____ RATED BY _____

DEPT. _____ DATE _____

FACTORS	CROSS THE CORRECT SQUARE FOR EACH FACTOR				
1. EDUCATION	College 5	High School 4	Elem Math 3	Add & Sub 2	Read & Write 1
2. PHYSICAL EFFORT	a,b,c,d 10	e,f,g 8	h,i,j 6	k,l 4	m 2
3. CONDITIONS	a 5	b,c 4	d,e 3	f,g 2	h,i 1
4. HAZARDS	Very High 10	High 8	Average 6	Below Avg. 4	Slight 2
5. COORDINATION	Very High 5	High 4	Average 3	Below Avg. 2	Slight 1
6. MENTAL EFFORT	over____ 10	___to___ 8	___to___ 6	___to___ 4	___to___ 1
7. MECH. ABILITY	Over____ 10	___to___ 8	___to___ 6	___to___ 4	___to___ 2
8. LEARNING PERIOD	Over 3 yr. 10	1 to 3 yr. 8	6 mo-1 yr 6	3 - 6 mo. 4	1 - 3 mos 2
9. EXPERIENCE	over 12 mo 15	9-12 mo. 12	6-9 mo. 9	3-6 mo. 6	0 - 3 mos 3
10. RESP. (MEN)	Over 16 5	11-15 4	6-10 3	2 - 5 2	1 1
11. RESP. (EQUIP	Over $50M 5	$25M-$50M 4	$10M-$25M 3	$1M-$10M 2	Less $1M 1
12. RESP. (MAT.)	Over $50M 5	$25M-$50M 4	$10M-$25M 3	$1M-$10M 2	Less $1M 1
13. COMPLEXITY	Very High 5	High 4	Average 3	Below Avg. 2	Slight 1
14. EFFECT ON S. O.	Very High 5	High 4	Average 3	Below Avg. 2	Slight 1
15. ATT. TO ORDERS	Very High 5	High 4	Average 3	Below Avg. 2	Slight 1
16. KNOW. OTHER OPER.	Very High 5	High 4	Average 3	Below Avg. 2	Slight 1

PRESENT HOURLY RATE _____ TOTAL POINTS _____

This form records the information collected on the Job Requirements card, and the total score is used in the classification for the plant.

OFFICE OF PRODUCTION MANAGEMENT

Labor Division

TRAINING WITHIN INDUSTRY

District Offices

For information or advisory assistance concerning training problems, apply to the Training Within Industry district office nearest you.

Atlanta, Ga., Georgia School of Technology, 225 North Ave., NW. (Hemlock 6890)

Baltimore, Md., Room 3106, Baltimore Trust Bldg. (Plaza 1654)

Boston, Mass., Room 1033, Park Square Bldg. (Hubbard 0380)

Chicago, Ill., 26th Floor, 20 North Wacker Drive (Andover 1744)

Cincinnati, Ohio, Room 840, Union Trust Bldg. (Cherry 3740)

Cleveland, Ohio, 4th floor, Union Commerce Bldg., 925 Euclid Ave. (Cherry 5975)

Denver, Colo., Room 518, U. S. National Bank Bldg., 817 Seventeenth St. (Keystone 4151–596)

Detroit, Mich., Room 610, Boulevard Bldg., 7310 Woodward Ave. (Trinity 1–5520)

Houston, Tex., Room 3201, Gulf Bldg. (Fairfax 9842)

Indianapolis, Ind., Room 1428, Circle Tower Bldg. (Market 9411)

Los Angeles, Calif., Room 452, Roosevelt Bldg., 727 West Seventh St. (Trinity 2104, 2105)

Minneapolis, Minn., Room 1800, Rand Tower Bldg. (Bridgeport 7591)

Newark, N. J., Room 601, 605 Broad St. (Mitchell 2–1114)

New Haven, Conn., Room 513, 152 Temple St. (6–5186)

New York, N. Y., Room 2026, 11 West Forty-second St. (Pennsylvania 6–0486)

Philadelphia, Pa., Room 2301, 12 South Twelfth St. (Walnut 6820)

Pittsburgh, Pa., Room 360, Administration Bldg., Carnegie Institute of Technology (Mayflower 2600)

Portland, Oreg., Room 1006, Bedell Bldg. (Broadway 0380)

Raleigh, N. C., Raleigh Bldg., Fayetteville and Hargett Sts. (2–3306)

St. Louis, Mo., Room 603, Shell Bldg. (Central 4206)

San Francisco, Calif., Room 702, Newhall Bldg., 260 California St. (Exbrook 0369)

Seattle, Wash., Room 957, Stuart Bldg., Fourth and University Sts. (Eliot 6404)

Headquarters Office

Fourth Street and Independence Avenue, S.W.

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MORE PRODUCTION THROUGH TRAINING

Organizing Manpower for a Small-Arms Ammunition Plant . . . . . Example No. 8

TRAINING WITHIN INDUSTRY

WAR PRODUCTION BOARD

LABOR DIVISION

TRAINING WITHIN INDUSTRY
Labor Division
WAR PRODUCTION BOARD
Washington, D. C.

THE SOLUTION OF A VITAL PROBLEM

Within the space of 7 months, Remington Arms Company recruited and trained the organizations for two large, new ordnance plants and provided the nucleus of another similar supervisory and technical group to operate a third new plant which was opened several months after the first two went into production.

Similar preparation was given, in addition, to 300 other persons who were assigned to the parent plant to take care of major expansion there.

At the same time, the company developed job instructors and initiated a plan of upgrading whereby the many thousands of machine operators, inspectors, and tool setters who now man the production lines were trained to produce and inspect efficiently.

Most of the training was done on the job, supplemented by suitable background instruction, according to a carefully designed plan which had been worked out in detail. This type of preparation, Remington Arms found, is a sound solution of the problem of quickly manning a large plant with a competent supervisory and operating force.

Through the courtesy of the Remington Arms Company, the accompanying account of the methods it employs is made available to other companies that have similar problems.

C. R. DOOLEY, *Director,*
Training Within Industry.

Organizing Manpower for a Small-Arms Ammunition Plant

Two years ago, Remington Arms Company had 3,300 employees engaged in making cartridges for commercial and military purposes. In the months that followed, the company made new commitments to produce military cartridges and contracted to multiply its productive capacity several times. This called for greatly enlarging the parent plant, building three new ordnance plants in the Middle and Far West, and adding 25,000 workers.

The manufacture of military cartridges at Remington Arms involves precision processes from beginning to end. Almost every operation is carried out to very close limits and rigid inspection prevails at all stages of manufacture. Under these high standards, operators, toolsetters, inspectors, and supervisors must be thoroughly competent and well-grounded in Remington quality requirements.

Recruiting the Supervisory Staff

Steps to provide the technical, supervisory, and service personnel for these plants were initiated at the same time that construction of the first two new plants was begun. Although this dated back to December 1940, neither supervisors nor technicians with experience in the making of small-arms ammunition were to be had. The Remington management decided to use men without previous experience in ammunition manufacture but with suitable backgrounds and to train them for this work.

The majority of these men came from the sections where the new plants were being built—Missouri, Kansas, and Colorado—and from New England, the region in which the main factory is situated. Each man spent approximately 4 months in Bridgeport, Connecticut, location of the main and parent plant. Here, in the so-called Bridgeport Training School and on the production lines in the plant, carefully selected man material received background and developmental training for the duties that they later would perform.

Early in their training they were assigned to their eventual positions in the two new organizations and thus was put together the staffs that would operate the two new factories. During the last 3 months of their 4 months' preparation, the members of the two organizations learned to function as a team. When the time came to start up the new plants, a complete operating organization was on the scene prepared to cope with the problems of getting the plants into production. Some idea of the diversity of skills comprised in the two organizations may be formed by referring to the chart, marked Exhibit I, which shows one organization in skeleton form.

Manning the Production Lines

The second phase of manning the new plants—preparing the thousands of new rank-and-file employees to produce and inspect efficiently—was also projected and initiated by the Central Service Department at Bridgeport. Recruiting and training throughout the company are carried out under the auspices of this department.

Remington Arms requires that operators and inspectors in its factories shall all be trained in job performance. In order to initiate this job instruction at each of the two new plants and to expand this training at the parent plant, several hundred toolsetters and fourscore toolsetter instructors were given specific preparation for this task. Through upgrading and expansion of the initial training operation which had been set up in each plant after the start-up, job instruction was carried to all of the several thousand new employees who were taken on as production got under way.

RESULTS OF THE TRAINING PROGRAM

This training project, which prepared 1,400 persons for the supervisory, technical, and service requirements of four widely separated plants, called for courage and vision. Unable

to obtain the highly specialized manpower required, the company set out to fill the need through organized training.

In several respects, new trails were broken. Few companies had attempted to develop a large group of highly specialized technicians and supervisors from totally inexperienced material within a relatively short time; and few companies had undertaken to recruit and train a complete supervisory and technical organization for a large plant in advance of its opening.

Six months have passed since the first two new plants were started up and the greatly expanded operations in the parent factory became a reality. At the request of Training Within Industry, the president of the company, Mr. C. K. Davis, was asked to comment on the company's experience with this approach to its manpower problem. He replied in these words:

"When Remington agreed to our Government's request that the Company take a major part in the production of ammunition for the armed forces, it was realized that the Company faced a problem of considerable magnitude in training the new personnel which would be needed to man the proposed plants. The Training Program reviewed in this report was Remington's answer to the challenge presented. The program was the result of the coordinated thought and effort of many men, both in the Remington organization and in the Government.

"Two new Ordnance Plants have been manned and are now producing ammunition. Additional personnel has been procured and is rapidly being trained at the new plants to staff and operate a third new Ordnance Plant which is now nearing completion. The product of our training program, trained personnel, is now demonstrating the success of these efforts by their work at the new locations.

"Refinements and changes in detail may be made in future projects, but essentially this method of training has demonstrated its effectiveness in teaching new supervisory and operating personnel the job knowledge and the leadership principles necessary to produce a high-quality precision product in very large quantities."

These words reflect the most recent action taken by the company in manning a plant. The supervisory, technical, and service organization for the third new plant—situated in Utah—is being trained according to the method described in Mr. Davis' letter and outlined in this report. This preparatory development is being given in the training departments of the first two new plants, the group in training being divided between them. Pending completion of their training, which could not be accomplished prior to opening the third plant, a nucleus of the ultimate organization was drawn from the other units to start up the third plant.

THE COMPANY'S PRODUCTION PROBLEM

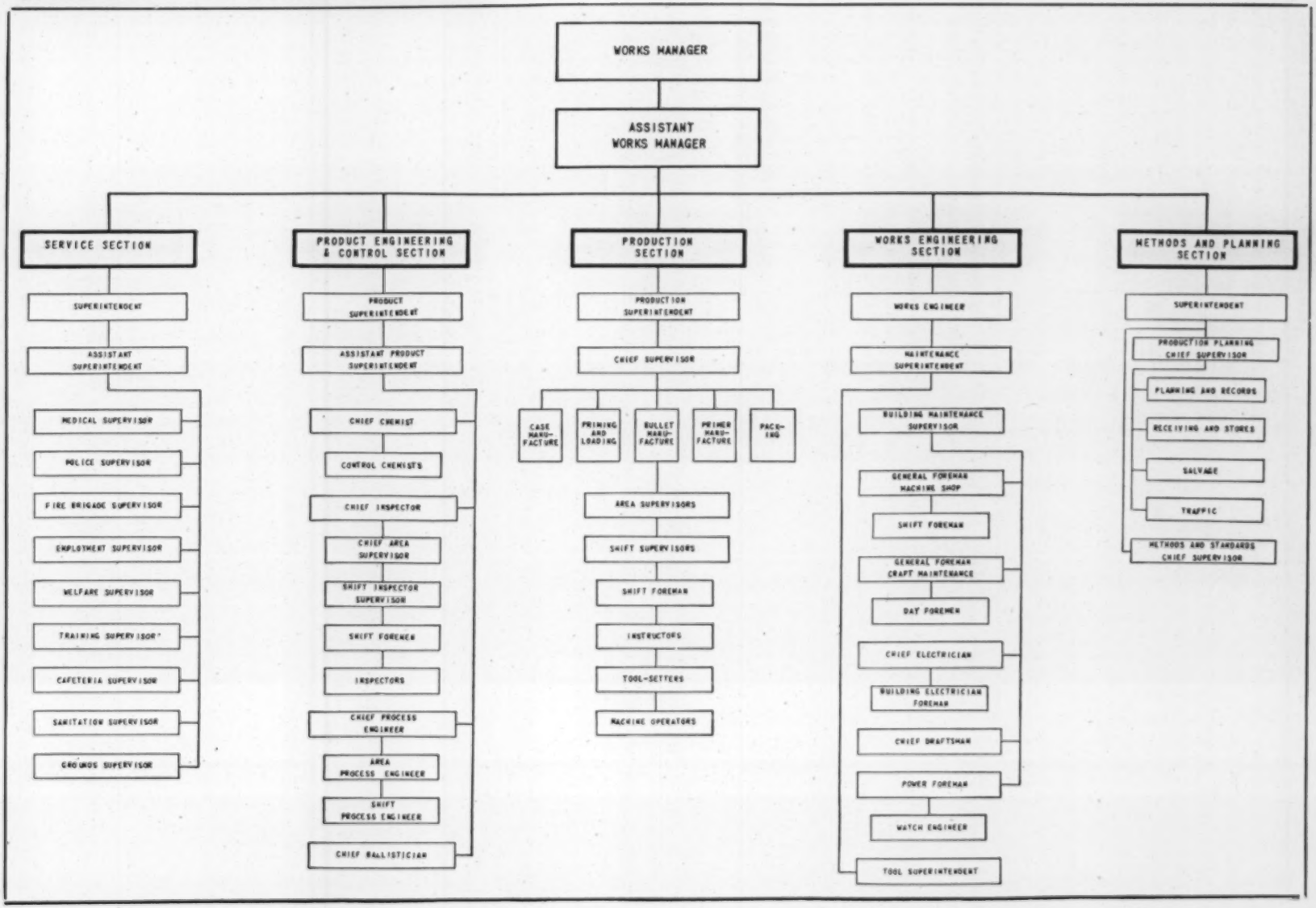
In June 1933, a controlling interest in Remington Arms Company, Inc., was acquired by E. I. du Pont de Nemours & Company. Remington Arms Company owns and operates four plants devoted to the manufacture of sporting ammunition, certain types of sporting arms, and targets and traps.

In May 1940, the company began expanding its manufacture of cartridges for military purposes. Some months later, contracts were entered into with the U. S. War Department for operating two plants in the Middle West. By September 1941, equipment had been received and installed, and both plants were being manned as described herein. Western Missouri was selected as the site for one of the factories and Colorado for the other. The third new ordnance plant was located in Utah. This report refers only to the company's manufacture of cartridges for military use and does not include the making of cartridges for commercial purposes.

Quality is paramount at every step in the manufacture of Remington Arms cartridges. The inspection staff is exceptionally large compared to the number of employees engaged directly in production. As a further safeguard to quality, machine operators are not permitted to set tools or adjust machines. This is entrusted solely to toolsetters who continually check the product and the tools in the machines. All metallic cartridge components including bullets and primers are made by the company.

EXHIBIT I

Typical skills in one of the plant organizations.



Form of Organization

A simple and direct form of organization is characteristic of the three new ordnance plants. Reporting to the Works Manager and the Assistant Works Manager are these six functional sections:

—Production.
—Product Engineering and Control.
—Works Engineering.
—Methods and Planning.
—Service.
—Purchasing.

The Product Engineering and Control Section includes Inspection, Chemical Control, Process Engineering, and the Ballistic Laboratory. The Works Engineering Section, devoted primarily to maintenance, also takes in the Tool Department. The Service Section is responsible for medical service, safety policy, fire prevention, employment, welfare, training, cafeteria, and sanitation.

Projecting Manpower Requirements

While the two plants were being built and equipment was being installed, provision was being made for the supervisory, technical, and service organization. First step was to determine manpower requirements for the production lines, the inspection operation and maintenance, and other sections. The general approach is outlined briefly below:

—The number of machines of each type that would be needed was determined on the basis of their rated hourly capacity in relation to the total scheduled output.

—The number of machines necessary indicated the number of operators, machine tenders, inspectors, and other workers needed.

—The stages by which the plant would be brought up to full normal production (allowing for delays in equipment deliveries and "breaking in") were projected on a monthly basis.

—The number of operators, machine tenders, inspectors, and other workers required at each monthly stage was then determined. This showed the number of persons to be trained month by month.

—The supervisory, technical, and service personnel needed to administer and serve the production lines and other plant operations.

Working Force for Each Plant

Based on these forecasts and subsequent adjustments, it was determined that the working force required for normal capacity operations would consist of these groups for each of the two new plants:

—upper management from works manager to and including the superintendents of the six sections—largely drawn from Remington Arms and du Pont plants.

—the supervisory, technical, and service group—over 300 supervisors and foremen of the various grades, and technical and service persons from area supervisor to nurse.

—the toolsetter group—comprised of about 100 instructors and about 800 toolsetters.

—the quality and inspection unit—numbering well over a thousand.

—the operators, machine feeders, maintenance and service people, and the office staff—numbering several thousands.

—the machine-tool and tool-room specialists.

RECRUITMENT OF ORGANIZATION PERSONNEL

The recruiting of supervisory, technical, and service personnel for the first two new plants was carried out then, as now, by the Central Service Department at Bridgeport.

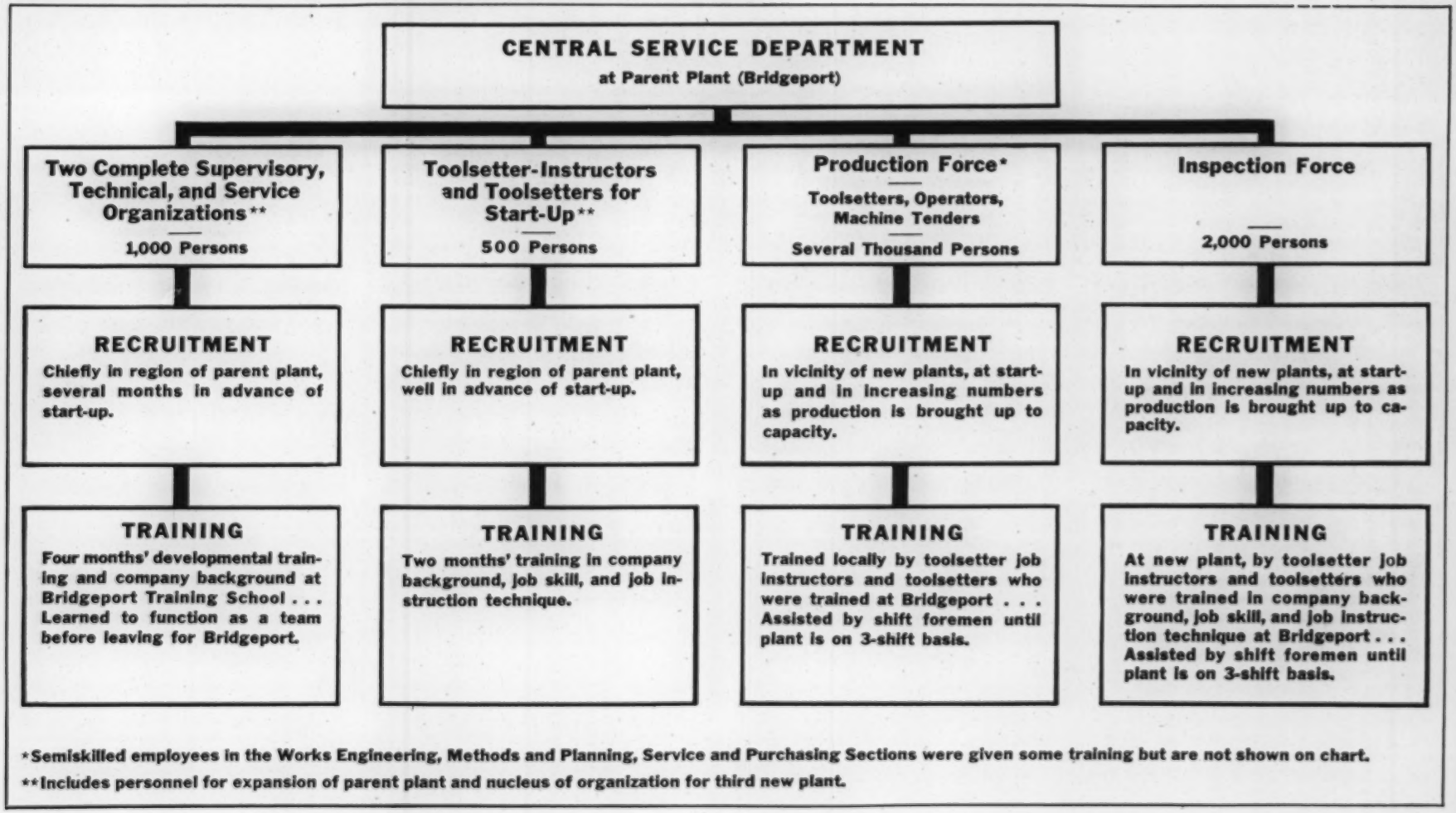
This task was performed largely by the employment offices at Bridgeport, Kansas City, and Denver. Recruits were located also by traveling representatives. Use was made of blind advertisements in the newspapers, the suggestions of employment agencies, State Employment Offices, and employees. Applicants were encouraged to apply by letter to the Bridgeport employment office.

The company did not seek beginners but engaged those who had suitable background and work experience that could be adapted to its needs. Consideration was given to each of 30 job classifications for which the candidate might offer experience and aptitude.

The candidates who were accepted had passed comprehensive requirements. Their character, references, and records of employment had been thoroughly investigated. Physical characteristics, capacity for leadership, education, and work experience were primary criterions of selection. Although a high-school education or equivalent was a minimum requisite, a large number had a college background. The education of many qualified them

EXHIBIT II

Plan of recruitment and training for manning the first two new plants.



*Semiskilled employees in the Works Engineering, Methods and Planning, Service and Purchasing Sections were given some training but are not shown on chart.

**Includes personnel for expansion of parent plant and nucleus of organization for third new plant.

after preparation for technical assignments such as process control, ballistics, product and methods analysis, etc. Out of more than a thousand who had been selected and trained by September 1, 1941, less than 1½ percent were released, either at their own request or because they did not measure up.

The majority of those engaged for the two new plants came from the sections of the country to which they were later assigned. A large proportion are family men. Applicants who came from distant points were hired before taking the train for Bridgeport. Men in training received full salary during this period, which included traveling time. In some cases, family men received slightly more in the form of a living allowance.

It is the company's belief that these human considerations are beneficial not only to the man but also to the Government, since the man will be working in a plant owned by the Government.

COMPREHENSIVE TRAINING DECIDED ON

Faced with the necessity of staffing two complete organizations with competent personnel by September 1, 1941, Remington Arms decided upon a training operation proportioned to the task.

Planned, intensive training was called for. This, in the opinion of the management, is the quickest, most efficient way to mobilize two fully qualified staffs in advance of opening the plants and to give the needed job instruction to the several thousand operators, toolsetters, and inspectors who will man the production lines. But equally vital was the management's insistence on measures that encourage good employee-employer relations. Most effective way to realize this, the Remington Company believes, is to see that the entire supervisory and technical staff has a clear understanding of how to deal in the fairest possible manner with its employees.

Scope of the Job to Be Done

Preparing the thousands of new employees of all ranks for their jobs took the form of the four main operations as shown below:

1. Developing the two operative organizations for the first two new plants, the nucleus of similar personnel for the third new plant, and personnel for expansion of the parent plant.
2. Training the toolsetter instructors and the toolsetters who were to prepare the initial group of operators and toolsetters at the start-up.
3. Training and upgrading the large number of production line operators.
4. Training the large inspection force.

The four parts of this training project are shown graphically on the chart, Exhibit II. Under this program, every new employee would be given suitable preparation for the job he or she would fill in the new plants or in the expansion of the main factory.

The first two of the training operations, it was decided, would be carried out at a central training center. At this central point, those chosen for supervisory, technical, and service positions would receive their developmental preparation. The start-up toolsetter instructors and toolsetters would be trained here as well. But in regard to the other two operations—preparing the several thousands who would man the production lines and do the inspecting—it was decided to do this part of the training operation at the new plants, where these employees would be hired and would work.

The Bridgeport Training School

Bridgeport, the company's headquarters, was selected as the scene of the developmental activities for the first two operations, and the central training center came to be known as the Bridgeport Training School. The parent plant offered several advantages. Production lines were at hand from which shop instructors could be obtained who are a "must" in the training operation. Also, the plant provided the needed factory environment. But, most important, the factory afforded training on the job in intimate association with actual production and other factory duties for which the newcomers were being prepared. Here new employees would "learn by doing."

The developmental lectures and instruction, the manipulative training, and the conferences—supplementary to training on the job—were held in these locations:

—Lecture and demonstration rooms in one section of the plant.

—The Training Shop close to the lecture rooms.

—The production lines and other operating departments in the factory.

EXHIBIT III

Orientation schedule.

FIRST DAY.

8:00 to 10:00 a. m.—Registration—Receives Company Manual.
10:00 to 12:00 a. m.—Informal Explanation of—
—General Plan of Training School.
—Training School Office and Shop.
—How Orientation Office Functions in Serving the New "Student."
1:00 to 2:00 p. m.—Explanation of Tools and Dies, and Their Uses.
2:00 to 3:00 p. m.—Explanation of Machines in Common Use.
3:00 to 4:00 p. m.—Important Buildings in the Plant. Questions.

SECOND DAY.

8:00 to 9:00 a. m.—Lecture: History of Remington Arms Company; Importance of Quality.
9:00 to 11:00 a. m.—Lecture: Steps in Making the Cartridge Case.
11:00 to 12:00 a. m.—Lecture: Safety.
1:00 to 2:00 p. m.—Lecture: Cartridge Components.
2:00 to 3:00 p. m.—Tour of Various Areas in the Plant.
3:00 to 4:00 p. m.—Lecture: Steps in Making the Bullet.
4:00 to 4:45 p. m.—Lecture: Fitting into the Organization.
4:45 to 5:00 p. m.—Distribution of Notes on Subjects Covered.
—Assignment to a Shift in the Training School Shop.

Administration of the Training School

The instruction and service staff of the Training School totaled 53 during the 3 months' peak period, May to July inclusive. In addition to the training superintendent and training supervisor, the staff at that stage consisted of 22 Training Shop foremen and instructors; 10 part-time lecturers; 15 contact and control men; and 4 stenographers.

The duties of the contact and control men were to find board and room for recruits; arrange for recreations; schedule the lectures and shop tours; keep attendance records; and administer finances. A great deal of detail was involved, for nothing was left to chance. Not only did the control men attend to this detail work but they were responsible as well for appraisal, coordination, and follow-up. With the majority of men away from their families for months and the school closed Saturday and Sunday, wholesome recreation was encouraged. Planned diversion often took the form of sports and trips to New York. Without recreation, it was realized, sustained enthusiasm is not probable.

The Training School opened in February 1941, and operations reached their peak in May. From July 15 on, the school attendance fell off steadily as graduates left weekly in large groups to take up their duties in the Missouri, Colorado, and Bridgeport plants. Over a thousand supervisors, technical men, service people, and instructors had been trained by September 1. In addition, the school trained nearly 500 in manipulative skills.

Most of those in training for supervisory or technical positions spent 4 months *at least*, reckoned from the date of hiring to the day of beginning work in the plant.

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THE TRAINING PATTERN

The training at Bridgeport for supervisory, technical, service, and instructor responsibilities took these five forms:

1. Orientation—2 days.
2. Manipulative training in the Training Shop—taking down, setting up, and operating the basic production-line equipment—2 weeks.
3. On-the-job training in the Bridgeport plant—3 months.
4. Lectures and demonstrations—throughout the entire period of training.
5. Conferences, dinner meetings, informal talks with superiors, trips, etc., to foster teamwork—throughout the last 3 months.

The five divisions of the training operation are each described briefly on the succeeding pages. Following them is a brief account of the specialized instruction and seasoning given in the plant, and of lectures on specific subjects and techniques. The diversity of preparation this involved is indicated by the various types of skills represented in the chart, marked "Exhibit I."

Background Training

Remington Arms' primary aim in training employees is to give them the knowledge that will enable them to produce high-quality ammunition. The chief purpose of the training given at the Bridgeport Training School was background preparation for further training that would be given those in supervisory and technical capacities upon taking up their duties in the plants.

Hence, much of the preparation at Bridgeport was essentially of a background nature. It was the same for everyone and mandatory for all who were expected to be of supervisory grade or to serve in a technical capacity. It consisted of: orientation; manipulative experience with basic production equipment in the Training Shop; and participation in three series of lectures.

The content of the 32 one-hour lectures embraced in the three series was designed to familiarize the student with general plans for the new plants, the program for safety, foreman routines, and leadership development.

Orientation

The outline in Exhibit III shows the compact yet flexible schedule which proved effective in orienting the newcomer to his strange environment and in conveying favorable first impressions of the company. In addition, there were man-to-man talks at the outset to help him feel at home, and he was impressed with the realization that he was there for a serious purpose.

Among the points covered during the two orientation days were the following:

Factory routine.
Working hours.
Work clothes.
Smoking and matches.
Quality of work.
Staying on the job the full day.
Safety.
Remington organization.
History of Remington Arms.
Cost of tools.
"Learn by doing."
Willingness to work.
Taking criticism.
Getting along with others.
Terminology.
Cartridge components.
Fitting into the organization.

Each student received comprehensive notes on the history of the company, its aims, and the great importance of quality. Also, he was given a manual on processes in the making of small-arms ammunition.

Tours of representative areas in the Bridgeport works, participation in informal discussions, and planned recreation featured the 2 days of orientation and the 2 weeks spent in the Training Shop.

The Training School Shop

A minimum of 2 weeks in the Training School Shop was required of every one enrolled in the Training School, regardless of rank or the kind of work he would be engaged in.

The object was to impart a clear understanding of the operation and maintenance of the basic production machines. Instruction and practice were given in taking down and assembling bullet and case-making machines; also, in their operation, and in inspection procedure.

The Training Shop concentrated on instruction and no attempt was made to turn out usable production. The unit was established after it was found that effective instruction could not be given on the production lines.

EXHIBIT IV

Outline of background lectures attended by all in training for supervisory and technical positions.

LECTURE COURSE NO. 1

Given in connection with shop tours

1. History of the Remington Arms Company.
2. Safety.
3. The Remington Organization.
4. Fitting into the Organization.
5. Plans for New Plants.
6. Cartridge Nomenclature.

LECTURE COURSE NO. 10

Routine Duties of the Foreman, dealing chiefly with paper work

1. Employment and Safety Procedures.
2. Work Orders, Store Tickets, Material Requisitions.
3. Tool Orders.
4. } Wage Rates.
5. }
6. Waste and Scrap.
7. } Budgets.
8. }
9. Quality.
10. } Industrial Relations Plans.
11. }

LECTURE COURSE NO. 11

1. The job of being a Foreman.
2. The Foreman's responsibility for the safety and health of his men.
3. Leadership responsibility and its meaning.
4. Receiving the new man into the organization.
5. Training the new man.
6. Orders, directions, and suggestions.
7. Securing and holding confidence.
8. Things that get Foremen into trouble.
9. Grievances.
10. Discipline.
11. Planning the day's work.
12. Cooperation.
13. The Foremen and the Community.
14. } Other subjects of common in-
15. } terest.

In the early days of the Training Shop, those who eventually would occupy positions that are not directly productive—such as drafting, product scheduling, and plant maintenance—were not required to take Shop Training. In a short time, however, it proved so valuable it was made compulsory for all in training.

Safety and high quality standards were continually stressed. The mystery that surrounded plant terminology largely vanished. The Training Shop was equipped with a wide variety of the machines, tools, and gauges used in the manufacture of the types of ammunition later to be produced at the Ordnance Plants. The Shop ran 24 hours a day, with three 8-hour shifts. Six instructors on each shift under a foreman supplied manipulative guidance. The entire operation was in charge of a general foreman, who had a special talent for teaching.

When the Training Shop was first established, it was customary for the Bridgeport plant to train new toolsetters on the production lines. As the advantage of giving this instruction in the Training Shop became apparent, this training was shifted from the production lines to the Shop.

Lectures

Those preparing for supervisory, technical, and service positions attended lectures throughout their entire stay in the Training School. This included the 3 months spent in the plant. The lecture topics paralleled their other activities. The three lecture courses on Remington background and leadership are shown in outline as Exhibit IV. Six other lecture courses were given

for those whose ultimate duties would be in the Production and Product Control sections. These courses dealt with metal processing, ballistics, explosives, and inspection.

The lecture schedule was closely adhered to and attendance was consistently kept up. Each man in training attended 32 to 48 lectures. When a lecture was missed, it was always "made up." During peak operations, the instruction staff delivered more than 300 lectures in a month.

TRAINING ON THE JOB

At the time a potential foreman, supervisor, or technical man was hired, no indication was given concerning the position he later would fill. But during his stay in the Training Shop, his qualifications and characteristics were being closely noted. As his time in the Shop drew to a close, conclusions were being reached regarding the type of work, section, and area where he would do best. The Managers of the new plants and section heads worked closely with the Training School. It was at this juncture that they built their organizations through selections of personnel and assignments to specific positions.

Decisions were reached usually by the section or area head concerned, in concert with one or more of his instructors and the training supervisor. Reference was made to the candidate's training and experience. Once the decision was made, the person concerned was earmarked for specific training in the Bridgeport plant. He was sent to the particular department that would be most valuable in qualifying him for the work he later would do. In short, his training from that point on was pointed directly at the job he would fill.

Three of the potential supervisor's 4-months' preparation were spent in this on-the-job training. This third and last stage followed immediately the 2 weeks in the Training School Shop.

> As a rule, he was given actual work assignments and he reported to the foreman as well as to the Training Supervisor. Sometimes he served as assistant foreman when he could be useful in that capacity. If assigned to production, the foreman had him work on every machine and process in the area. At the beginning, he performed the simpler operations—running a press, tending a buffer, or setting a tool. As the weeks passed, he developed a real appreciation of the most frequent causes of interruptions. While in the plant he attended four lectures a week.
>
> A number of the machines and procedures to be used at the new plants were not available at the Bridgeport Plant. In order to familiarize the new employees with the actual machines and processes they would use, arrangements were made with Frankford Arsenal to allow a substantial number of the men to spend 1 to 3 weeks at the Arsenal working on a job similar to the one they would later have to supervise. During the time spent at the Arsenal, frequent conferences and discussions were held and each employee wrote a report covering the time he spent there.

PUTTING THE ORGANIZATION TOGETHER

While the future supervisor or technical man was "learning by doing" in the shop, he met at informal daily group meetings with those who would be his associates and superiors in the new plant. Plans and problems in starting up the new factory were discussed. This process took place all the way up and down the new organization in the making: The works manager met with his section superintendents; they in turn met with their area supervisors; and the latter with the shift supervisors and foremen. Similarly the chief process engineer met with his twenty process engineers twice a week, and so on down through the several sections, divisions, and areas.

> Thus, each man rather early in his training found his interests focused specifically on the department in which he would be presently employed. He became acquainted with his fellow-employees and his prospective supervisor. The man who needed guidance was able to get it from someone who was directly interested in his individual progress. With help, he was able to concentrate on points in his training which would be most useful in the new plant.
>
> The future supervisor was keenly interested in developing the skills in the men who were to be associated with him. He was alert to the responsibility and opportunity of providing incentive to the trainees. It was to his benefit as well as to theirs that they derive the maximum from the course. Advance experience with discipline and personnel problems was valuable preparation for giving close attention to start-up problems when the plants were opened.

In this manner, the management, supervisory, and technical organization was woven together and became a more or less smooth working team that was ready for action when it moved to the scene of its work 1,500 miles away.

EXHIBIT V

Toolsetter's duties.

The toolsetter is responsible for the following functions with regard to his performance and that of the operators with whom he is associated. When an operator requests corrective action on one of the points below (marked with an asterisk), it should be initialed by the toolsetter, but final decision is reserved for the foreman.

I. Safety

A. A thorough knowledge and strict adherence to safety rules and regulations.

B. Reinstructing offending operators when unsafe practices are observed.

C. Reinstructing offending operators when infractions of the rules and regulations involving conduct are observed.

D. Reporting any unsafe conditions.

II. Quality

A. Each operator having a thorough and accurate conception of quality.

B. Instructing operators to shut off machines if a poor quality product is being produced or if the quality of the product is not being constantly and accurately checked by the operators.

C. Checking quality personally at regular intervals.

D. Instructing operators and reinstructing negligent operators in the proper use and care of gauges.

III. Housekeeping

A. Instructing operators and reinstructing negligent operators to maintain an orderly arrangement and segregation of work.

B. Instructing operators and reinstructing negligent operators to keep his or her machine(s) and area neat and clean.

C. Instructing operators and reinstructing negligent operators to keep the work properly identified.

IV. Mechanical

A. The tooling on each machine being the correct type and being properly used.

B. Keeping all equipment in operating condition as far as adjustment, set-up, and tooling is concerned.

C. Obtaining new tools from tool crib.

D. The proper lubrication of machines.

E. Keeping foreman informed as to machine repair needs.

F. Keeping all tools in his possession properly marked and segregated.

V. General

A. Personally cooperating with departmental inspectors as much as possible.

B. Reinstructing operators when issued instructions are not followed. (This is not Bridgeport practice, but is offered as a suggestion.)

THE SPECIALIZED PHASE FOR SPECIFIC JOBS

The specialized training provided for the different jobs in the various sections and divisions is outlined on the charts which appear as Exhibits VIII, IX, X, and XI. This training is described briefly below.

Supervisors for the Production Section

Assignments to plant duties for job training may be visualized for each type of process, by areas and operations, by referring to the chart, Exhibit VIII. The specialized lecture courses paralleled the particular type of on-the-job training given at the time. The content of the lecture courses is indicated below:

COURSE NO. 20. *Annealing and Cold Working of Brass—6 Lectures.*—Basic metallurgical course, with increasing emphasis on the cold working of brass and gilding metal in the manufacture of cases and bullets.

COURSE NO. 30. *Introductory Ballistics.—6 Lectures.*—Background of ballistics theory and history as well as a comprehensive study of ballistics and control, designed for production men.

COURSE NO. 40. *Primers and Tracers and Loading.—9 Lectures and Discussions.*—Complete manufacture of primers, tracer loading, cartridge loading, and the fundamentals of handling explosives.

COURSE NO. 50. *Introductory Inspection.—4 Lectures.*—Fundamentals of inspection as related to the production personnel with emphasis on component inspection.

Engineers and Supervisors for the Works Engineering Section

In order to be prepared for the contingencies that arise when plant equipment must be kept in service despite interruptions, those in training for duties in this section were assigned to actual operations in one of the three main divisions shown on the chart, Exhibit IX. The instruction was largely technical and it was given by division and unit heads.

Engineers and Supervisors for the Product Engineering and Control Section

The chart, Exhibit X, shows the inspection and control functions designed to continuously maintain the Remington quality standard throughout the ordnance works.

Largest of the five divisions in the section, in number of employees, is the Inspection Division under whose jurisdiction is 11 percent of the whole plant force. The many inspectors perform their duties in close association with the foremen of the Production Section.

Attendance at an advanced inspection course of 10 lectures was required of those who were being trained as inspection supervisors. It dealt with inspection in the plant, in all its phases: process, departmental, primed, unprimed, and cartridge. Individual assignments given out by the head inspector proved valuable. When in the Training Shop, those under training served in various capacities. Typical assignments were the quality performance of an inspection machine, variation analysis, writing inspection procedures, etc. Thorough grounding was given in the use of the micrometer and gauges. Knowledge of inspection principles and methods, and of skill, were tested regularly during the period of training. Thus was determined the rating of each man.

In the Process Engineering division, a number of the men in training were sent to the factories of equipment manufacturers to familiarize them with the proper operation of the machines. This followed the developmental training at Bridgeport. A feature of their Bridgeport training was the daily group meetings where it was customary for a member to present an assigned topic for discussion. Training for the Ballistics division was broadened by an advanced course of 16 lectures on ballistics engineering.

Engineers and Supervisors for the Methods and Planning and Service Sections

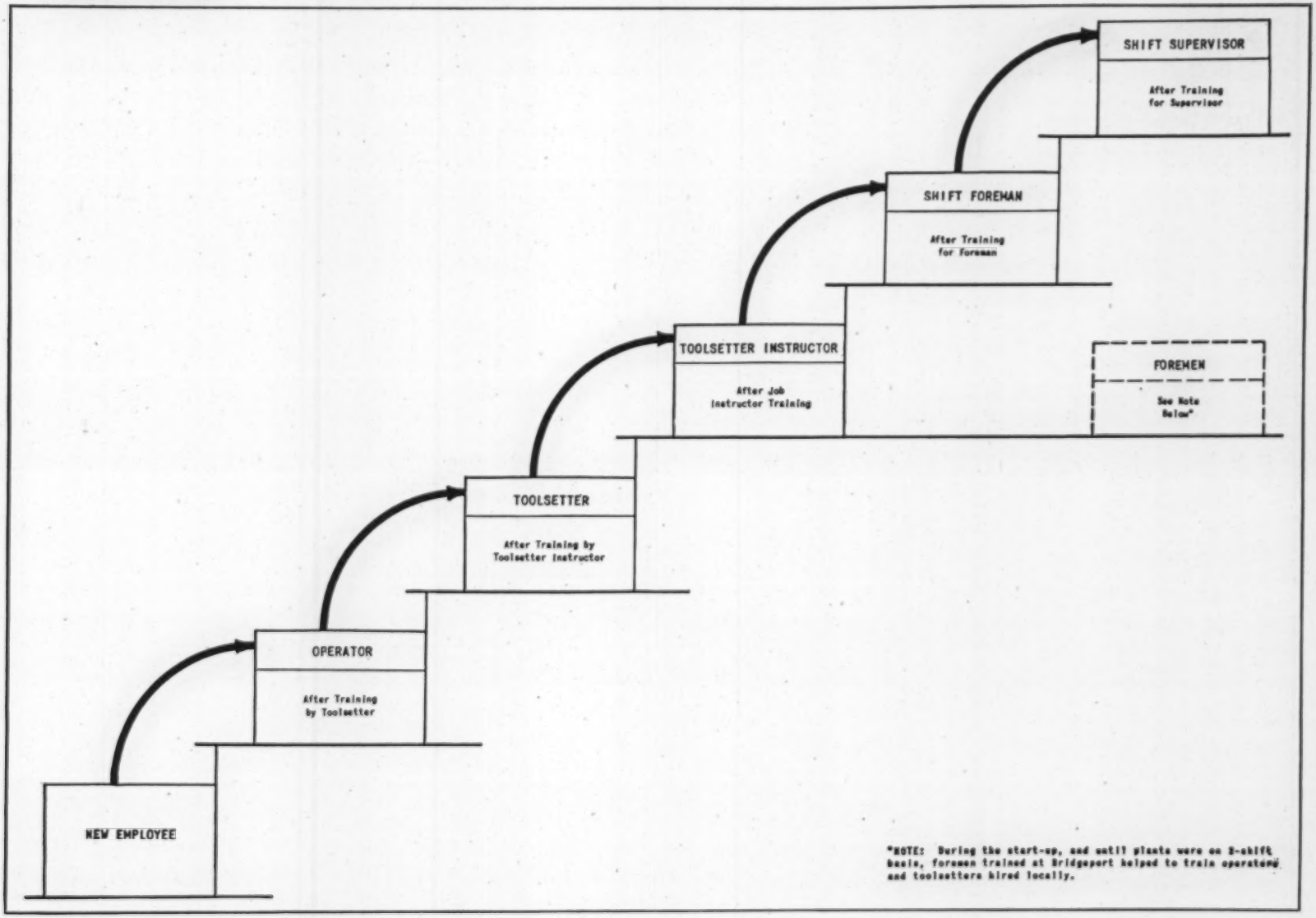
The variety of specialized supervisory and technical skills represented in this section may be seen by referring to Exhibit I. On-the-job training, to an even greater degree than in other sections, was the central element in the development of this varied personnel. On the chart, Exhibit XI, we note that this specialized training was supported by the background development that everyone received.

1941 College Graduates

From year to year, the company recruits, from technical schools and colleges, current graduates of promise who will be brought up in the organization to fill supervisory and technical positions.

EXHIBIT VI

Basic method of training and upgrading production line operators and toolsetters in new ordnance plants.



Following orientation and the usual 2 weeks in the Training Shop, the 1941 groups were assigned to various sections and divisions in the Bridgeport plant to serve in a beginning capacity as operators or at other jobs elsewhere of similar level. They participated in the full series of background lectures and, after some seasoning at Bridgeport in the factory environment, were sent to one of the new plants where they are now receiving the greater part of their training.

TRAINING THE RANK AND FILE

Fully as comprehensive and far-reaching measures are being taken by the Remington Arms' management to assure competent employees in the ranks as in the supervisory organization. The company requires suitable job training for all operators, toolsetters, inspectors, and others on the production lines, and for others on the same level in other sections of the plant. This applies to all of the company's plants. The basic method received careful study before its adoption since its application affects large numbers of employees, and it bears directly on the quality and volume of the output.

Intensive, planned instruction is the heart of the job training that is being given the thousands of new and upgraded employees. The advantages as reported by the company are several:

—The operator learns good work habits from the start.
—The operator is shown how to get full production.
—The operator learns how to work more safely.
—The necessity for sustained quality is brought home.

The training of the production force began at the Bridgeport Training School. Here, fourscore toolsetter instructors were brought up in how to train operators and toolsetters for the new plants and the parent factory. They were the start-off men in opening the two western plants. The instructor is a teaching assistant to the production line foreman. His part in the start-up is vital for he attends to important duties which otherwise would be ignored. During the "breaking in" stage of opening a new plant, foremen are largely occupied more than anything else with equipment and personnel problems. They have little time to attend to the reception and training of new employees. With a toolsetter instructor at hand, this vital need receives due attention, and the time required to turn out qualified operators and toolsetters is materially shortened.

Pattern of Local Training

One step below the toolsetter instructor in the plan of upgrading is the toolsetter himself. On the production line, he sets the tools and checks the product periodically for quality. He is responsible for seeing that the tooling is of the correct type, gauges are properly used, good housekeeping prevails, safety precautions are observed, and harmonious relations between inspectors and operators exist. Usually, a toolsetter looks after five, six, or seven operators. In addition, he trains new operators. His duties are listed in greater detail in Exhibit V.

The process of manning the two new plants with several thousand operators and toolsetters who have had suitable training was carried out in accord with a basic pattern. The procedure is understood most readily when we examine the training steps for an individual operation such as the first draw in making the bullet.

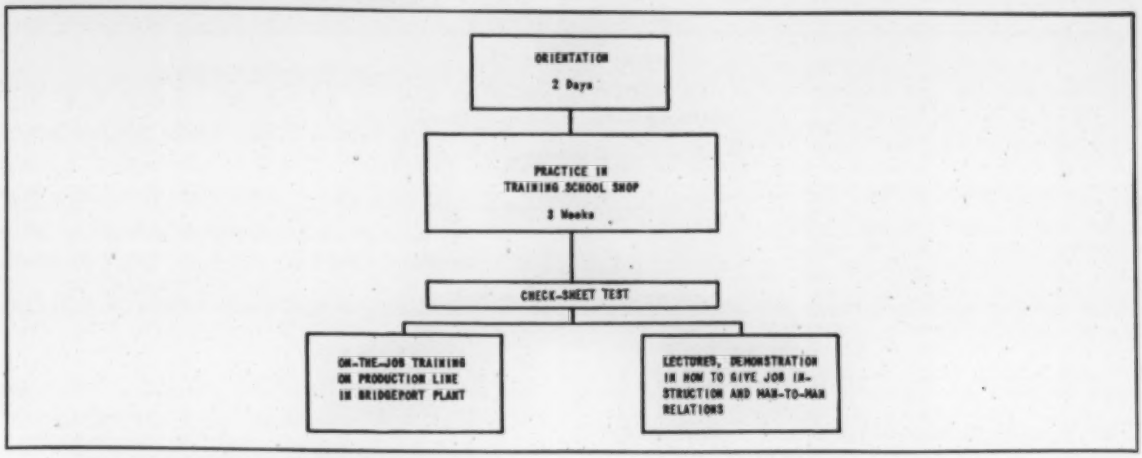
About 2 months before the start-up began, a toolsetter instructor (who was trained at the Bridgeport Training School and had taken up his duties in one of the new plants) began by training a new local employee (who had the capacity to become a toolsetter) to serve as an operator. Let us refer to this beginner as Operator A. When he became competent, usually in 3 to 4 days, a second new employee was brought in to be trained as an operator. Let us call him Operator B. He received his training from Operator A under the guidance of the toolsetter instructor. When Operator B had qualified, the toolsetter instructor took Operator A in hand and taught him to be a toolsetter. This simple process was repeated and expanded as production was built up.

As more toolsetters were developed, they trained beginners to become operators who took their places as actual production workers. Also, they assumed their regular duties as toolsetters, while toolsetter instructors brought up more toolsetters.

Applicants for work as toolsetters are chosen with reference to character, certain physical qualities, and some mechanical experience. Garage repair men and radio service men were favored, other factors being equal.

EXHIBIT VII

Developing toolsetter instructors.



BRIDGEPORT TRAINING FOR TOOLSETTERS

After 2 days of orientation, the potential toolsetter spent 3 weeks in the Training School Shop. Here, he was taught to set tools on one type of machine, the care and use of tools, basic metallurgy that refers to his work, and Remington product standards.

Each day he attended at least one lecture. The course embraced the following topics:

1. Safety.
2. Quality.
3. Housekeeping.
4. Care and use of tools.
5. Costs.
6. The toolsetter's job.

Before a toolsetter was assigned to the production line, he had to demonstrate that he qualified for the job. He was examined according to a check sheet before he was certified as competent.

Toolsetter Instructors Are Potential Foremen

Experience of this nature is excellent preparation for development as a foreman, and Remington Arms looks upon each toolsetter instructor as a potential foreman. The Company's upgrading policy provides for such advancement and the training that goes with it. As manning of the production section proceeded, and additional production lines were started up and new shifts added, toolsetter instructors with the requisite qualifications were advanced. They took the places of shift foremen when the latter were moved up to become area foremen or shift supervisors, and today they are advanced as opportunity and individual capacity permit. The upgrading process is shown on the chart, Exhibit VI.

Qualifications

Since he is a supervisor in the making, the potential toolsetter instructor must measure up to definite admission requirements. Many of the fourscore trained had at least a year in college: graduation from high school was a requisite. Character and personality were major factors. Some mechanical experience in a shop or garage or on the farm was deemed indispensable. College men were favored on the score of being flexible and more open-minded. The most promising among the toolsetters were also considered in this connection.

Training the Toolsetter Instructor

Reference to Exhibit VII shows the pattern of preparation given those who were trained to serve as toolsetter instructors. Three weeks were spent in the Training Shop instead of the usual 2 weeks that others in training were there. The ensuing months were divided between (1) on-the-job training on the production lines and (2) lectures, demonstrations, and practice in how to instruct.

In the plant the sponsors of toolsetters in training saw to it that the latter were given the information and work experience they needed, and were afforded the opportunity to serve as operators and toolsetters on every operation they would be called upon to teach.

The second phase consisted, first, of the lectures on how to give job instruction. The lectures were followed by demonstrations. Each man in training was required to prepare a write-up of his job defining steps to take to assure safety, quality, good housekeeping, and proper machine operation, and the terminology. He also prepared a list of the most frequent causes of trouble and the remedies for them.

In the Training School Shop, practice was given in actual job instruction. In addition to attending the lectures, all met once a week when problems were discussed and "teaching situations" were dramatized.

Familiarizing Machinists and Toolmakers

A number of journeymen machinists and toolmakers were prepared at the Training School for their duties in the Western plants. The training pattern consisted of (1) the customary orientation, (2) lectures on the heat treatment of tool steel, working of brass, and other pertinent subjects, (3) class instruction in shop mathematics, blueprint reading, machine tools, etc., and (4) some practice in the Training School Shop.

IN CONCLUSION

When Remington Arms made commitments which called for multiplying its output several times, the company appraised its manpower realistically and took appropriate steps to provide working forces in the numbers and kinds needed. In consequence, the 25,000 new employees needed so far to man the new plants (and the extensions to the main plant) have been successfully recruited. In addition, everyone with very few exceptions has been trained for his job, from assistants to managers at the top on through to the rank and file. It was a large undertaking but planned training, carried out largely on the job and backed by suitable related instruction, has manned the four ordnance works with adequate and competent working forces at the time they were needed.

EXHIBIT VIII

Developing supervisors for the Production Section.

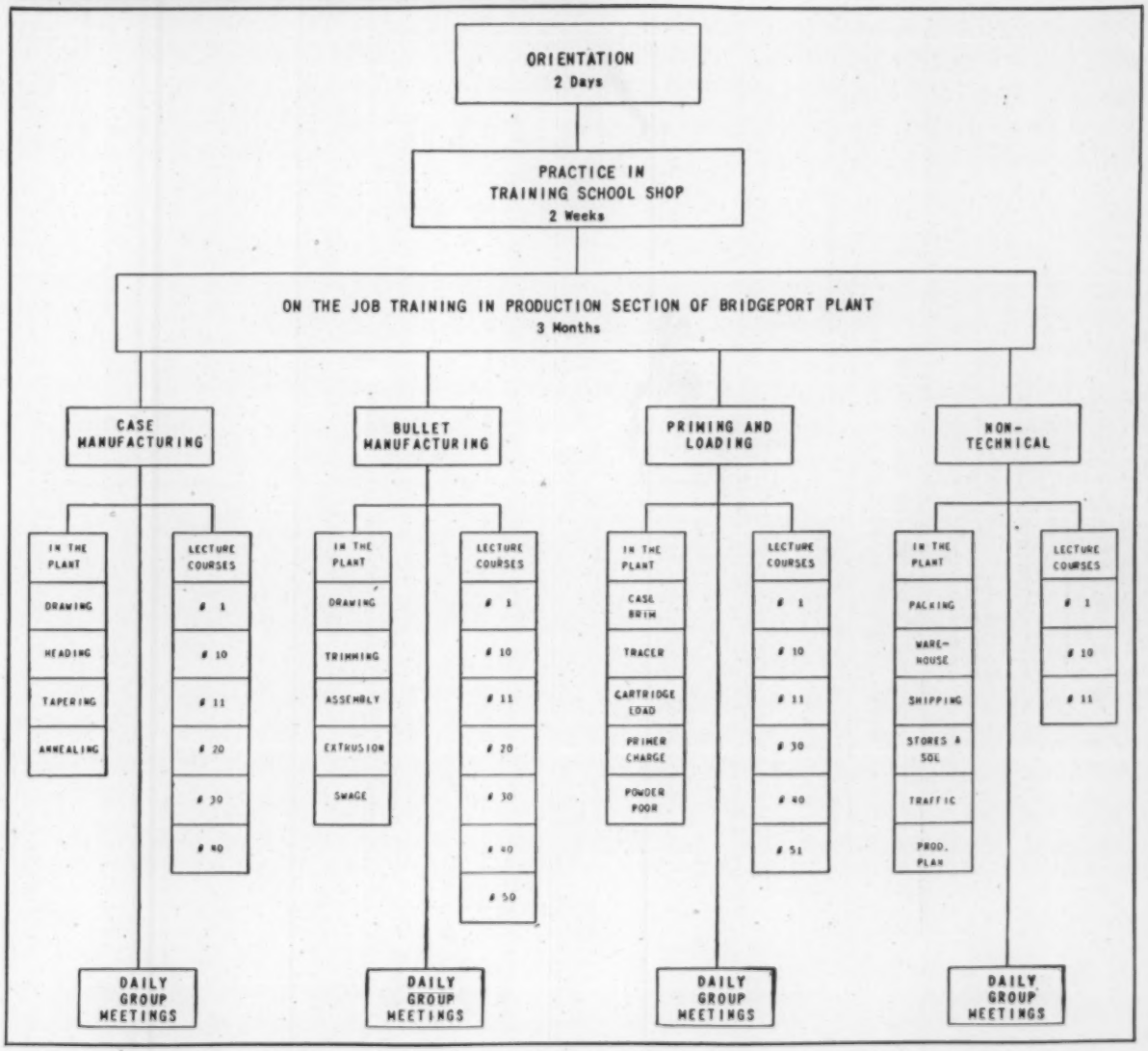


EXHIBIT IX

Developing supervisors and engineers for the Works Engineering Section.

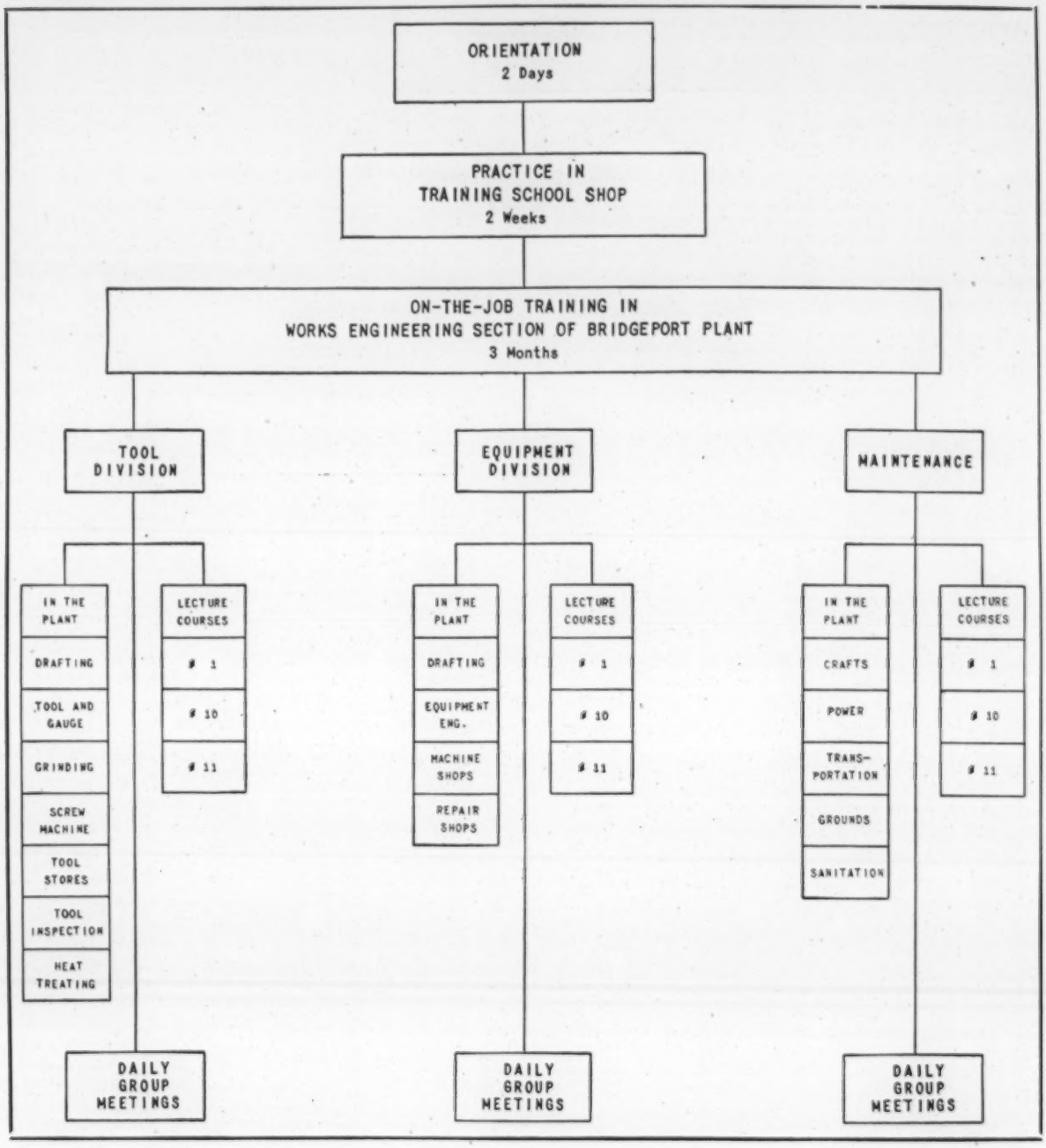


EXHIBIT X

Developing chemists, engineers, supervisors, and inspectors for the Product Engineering and Control Section.

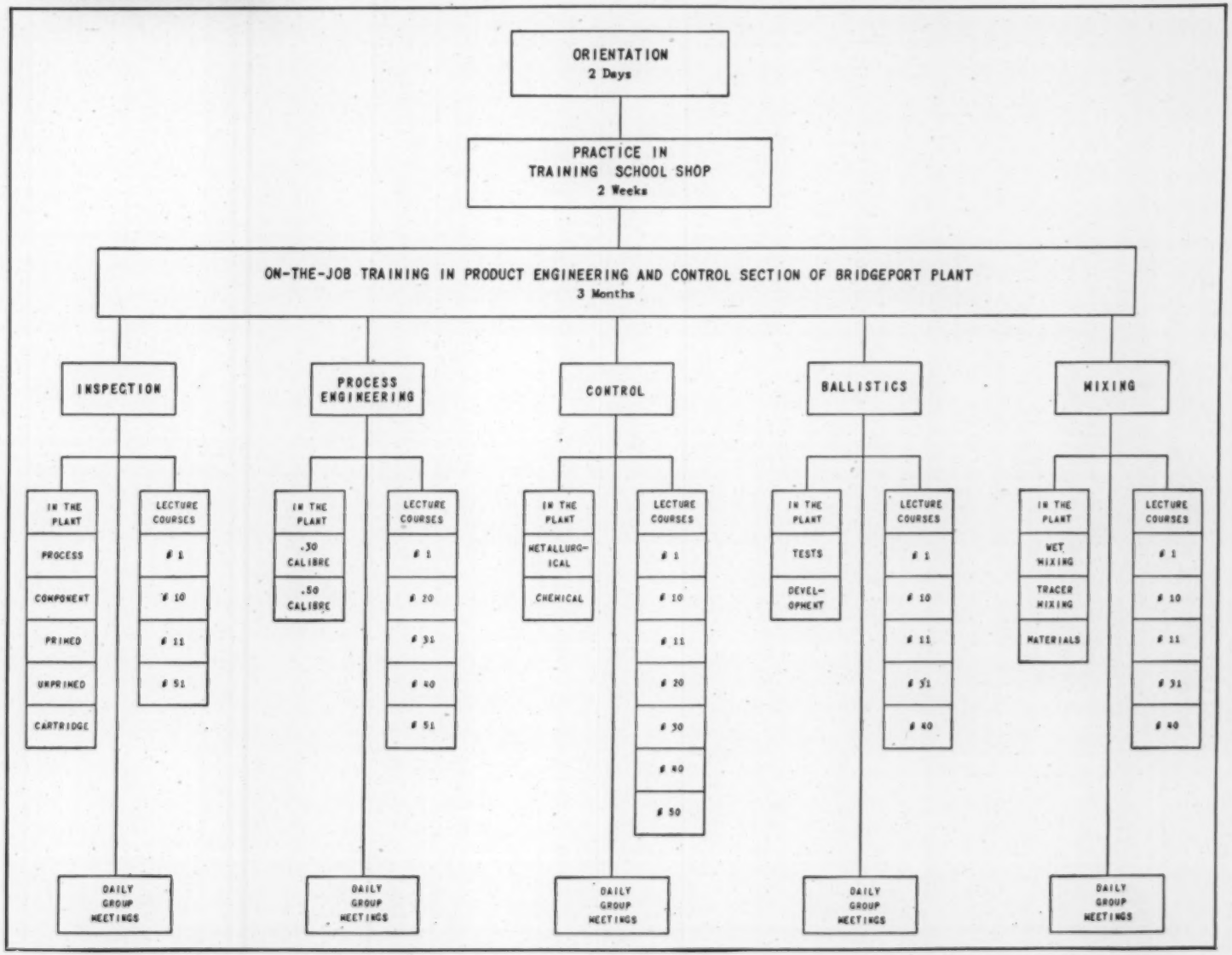
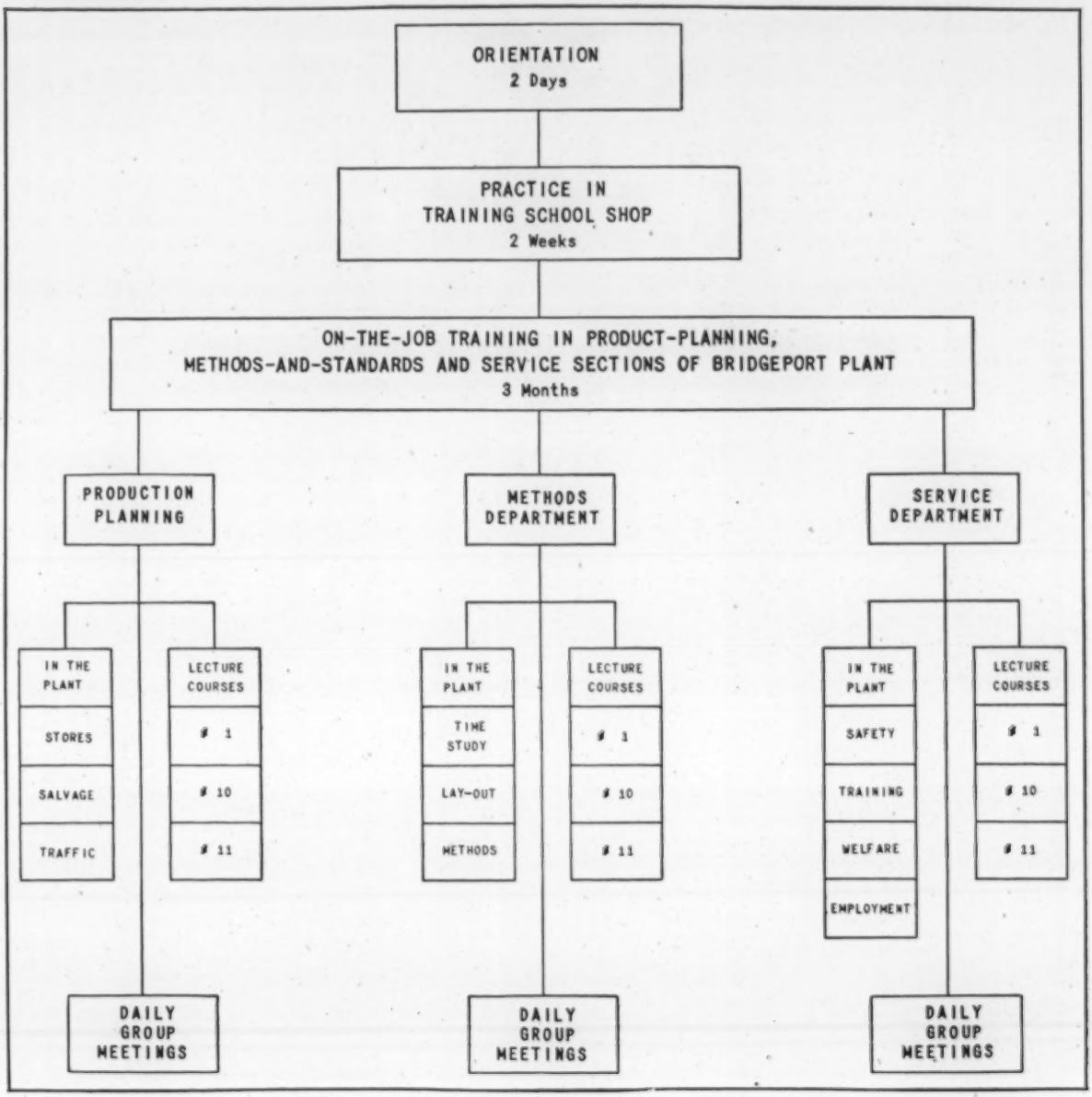


EXHIBIT XI

Developing engineers and supervisors for the Methods-and-Standards and Service Sections.



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Chicago, Ill., Room 2600, 20 North Wacker Drive (Andover 3600)

Cincinnati, Ohio, Room 840, Union Trust Bldg. (Cherry 3740)

Cleveland, Ohio, 4th floor, Union Commerce Bldg., 925 Euclid Ave. (Cherry 5975)

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Indianapolis, Ind., Room 1428, Circle Tower Bldg. (Market 9411)

Los Angeles, Calif., Room 755, Western Pacific Bldg., 1031 So. Broadway (Richmond 0311)

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Newark, N. J., Room 601, 605 Broad St. (Mitchell 2-1114)

New Haven, Conn., Room 513, 152 Temple St. (6-5186)

New York, N. Y., Room 2026, 11 West Forty-second St. (Murray Hill 3-6805)

Philadelphia, Pa., Room 2301, 12 South Twelfth St. (Locust 3400)

Pittsburgh, Pa., Room 360, Administration Bldg., Carnegie Institute of Technology (Mayflower 2600)

Portland, Oreg., Room 1006, Bedell Bldg. (Broadway 0380)

Raleigh, N. C., Raleigh Bldg., Fayetteville and Hargett Sts. (2-3306)

St. Louis, Mo., Room 603, Shell Bldg. (Central 4206)

San Francisco, Calif., Room 702, Newhall Bldg., 260 California St. (Exbrook 0369)

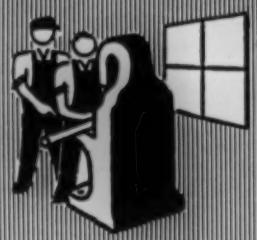
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Headquarters Office

Fourth Street and Independence Avenue, S.W.

Washington, D. C. (REpublic 7500)

U. S. GOVERNMENT PRINTING OFFICE: 1942



MORE PRODUCTION THROUGH TRAINING

Upgrading and Training in a Large Steel Corporation

. . . . . Example No. 9

TRAINING WITHIN INDUSTRY

WPB

LABOR DIVISION

WAR PRODUCTION BOARD

Labor Division

TRAINING WITHIN INDUSTRY

Washington, D. C.

Our experience in helping contractors with their training problems has shown that the solution in most cases falls into definite patterns or principles. This is true, although some companies maintain that their situation is "different."

The essential elements of these patterns have been recorded in bulletins which are prepared and distributed by Training Within Industry. In applying these principles, we have found that the experiences of individual companies have proved distinctly valuable to other contractors. Almost everyone is interested in hearing how other companies have done it.

An illustration of the application of these principles, on a large scale, is the practice of the Carnegie-Illinois Steel Company.

Through the courtesy of the management, the Company has made available to this branch of the Office of Production Management an outline of its training and upgrading program for the 135,000 employees in its 40 plants. It is reproduced on these pages for the benefit of other contractors with similar problems.

C. R. DOOLEY, *Director*,
Training Within Industry.

Upgrading and Training in a Large Steel Corporation

The Carnegie-Illinois Steel Corporation is the largest steel-producing subsidiary of the United States Steel Corporation. In addition to the regular steel products, the company also produces heavy, medium, and light armor plate and shell forgings. The annual rated capacity of the company is 22,000,000 ingot tons, making it the world's largest steel-producing company.

During the past 18 months, the company has added to its payroll more than 25,000 employees, which has placed a tremendous training burden on the entire organization. More than 5,000 foremen are participating in an organized program of supervisory development training; approximately 1,000 trade apprentices are enrolled in regular 4-year apprenticeship courses; 300 college recruits, designated as practice apprentices, are assigned to rotated positions of job experience receiving orientation training and studying steel-making practices.

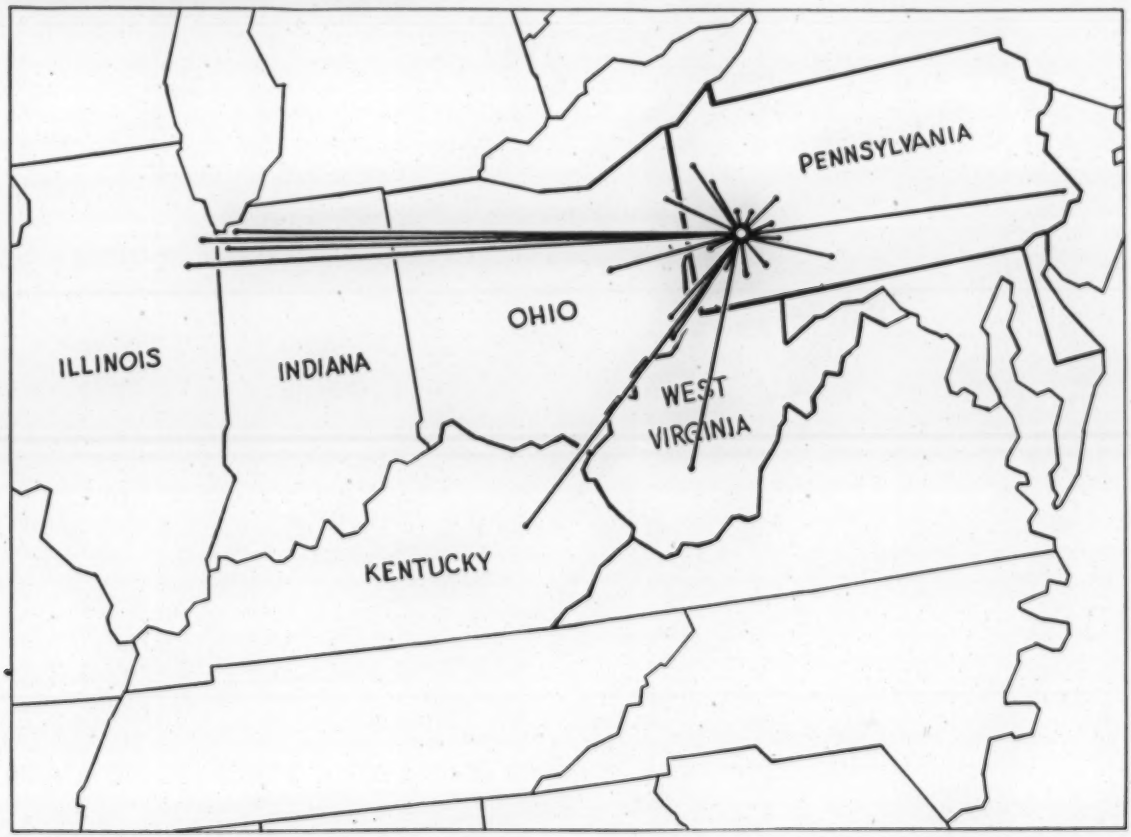
Several hundred learners and helpers are receiving organized training in preparation for production or maintenance positions and the remaining employees, totaling approximately 135,000, are being upgraded by supervisors, instructor-foremen, or designated job instructors.

During the year 1940, the company had approximately 8,000 employees enrolled in evening trade-extension classes studying courses designed to upgrade them in preparation for advancement.

General office and plant libraries are maintained for the use of employees and many

EXHIBIT I

Location of plants where upgrading and training are in effect. A total of 135,000 employees in 4,000 occupations are involved.



special educational mediums are utilized for supervisory and nonsupervisory employees.

Training in the Carnegie-Illinois company is a direct responsibility of the line organization. The Education and Training Division has its chief function as a service agency to the production, maintenance, and staff departments.

All activities are planned with the intention of providing the mechanism for broadening the perspective of the individuals trained, for improving the productive efforts of the employees, and to instill at all levels of the organization a desire to keep adequate continuity of training.

All training activities are planned with the intent of measuring the effectiveness of the program in tangible returns. Even those activities, such as executive or supervisory training, which by their very nature make it difficult to develop yardsticks for their coverage, are appraised critically and objectively in order that investments in training may bear fruit in the form of improved supervisory performance and company *esprit de corps*. With this principle of measured net worth in mind, the organization is kept constantly tuned to the importance of maintaining high standards of training.

Programs are instigated and encouraged by an adequate staff of specialists in the field of industrial education and by plant Directors of Training who carry the responsibility of counseling and and advising local plant executives in the best accepted methods of training to accomplish the organization's purposes. The plant programs are organized and expedited under the guidance of a Training Advisory Council composed of the general superintendent and his staff, who determine local training policies, and Training Working Committees composed of representatives from the various operation, maintenance, and staff departments, who organize and promote training activities in their respective departments. (The training organization and procedure is illustrated in the chart, Exhibit II.)

Executive and Supervisory Training

The company has utilized various forms of training mediums for the development of executives and supervisors such as conference discussions, panel discussions, lectures, motion pictures, sound slide films, executive letters, and similar media. In each plant of the company, conference leaders have been trained to conduct general plant or departmental conferences on a variety of personnel or operation subjects. Supervisors meet in regularly scheduled conferences and this medium is used for both (*a*) general supervisory development and (*b*) dissemination of information to all supervisory levels.

Trade Apprentice Training

Apprentices are employed in the following trades: Blacksmith, Boilermaker, Bricklayer, Carpenter, Electrician, Heat Treater, Machinist, Millwright, Moulder, Patternmaker, Pipe Fitter, Roll Turner, and Welder.

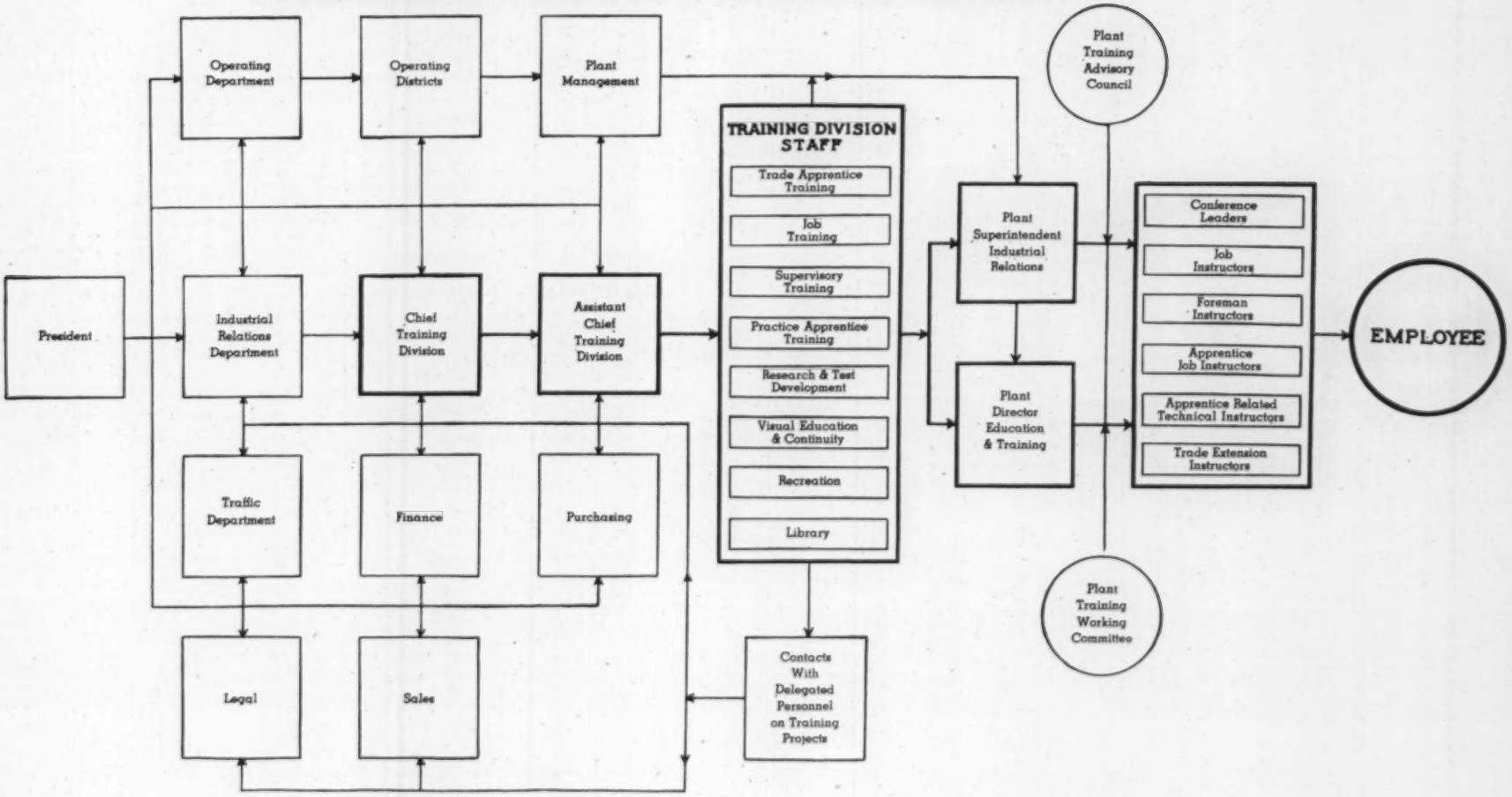
Related instruction is given in either company or public school classrooms, on the basis of a 200-hour minimum, during which they are paid their regular rate. Apprentices are under the supervision of either a full-time job instructor or a departmental foreman vested with training responsibility. They are paid on a graduated scale increased by increments in each of the eight 6-month periods included in the apprenticeship. Objective certification tests are used in measuring the progress of the apprentice and in determining deficiencies which may require further training.

Practice Apprentice Training

The company inducts each year a large number of college graduates who are recruited after interviews in the leading colleges and universities on the basis of scholarship and personality. The majority of these individuals are given a 2-month orientation course during which time they study steel-making practices under the direction of a specially trained metallurgist assigned this responsibility. Following the orientation period, these recruits are rotated through a number of positions (depending on the division of the company for which they are earmarked) where job experiences are planned for development purposes. At the end of this period, varying from 1 to 2 years, they are assigned to definite positions of responsibility after which they are included in regular supervisory training groups. Individuals are also selected annually

EXHIBIT II

Carnegie-Illinois Steel Corporation training organization and procedure.



for special training in the accounting, sales, engineering, and industrial engineering departments of the company.

Job Training

During the past few months, a large portion of the company's training efforts has been directed toward job-training programs for new employees, for employees assigned to units where the processes or equipment have changed, for employees requiring training to prepare them for advancement, or for employees who need upgrading in their present positions. The activities of the training staff are directed to:

1. Analysis of plant or departmental training needs (Exhibit III).
2. Planning of training programs.
3. Training of job instructors.
4. Indirect supervision of job-training.
5. Measurement of training results.

Designated job instructors have been trained by members of the Training Division staff who were certified for this purpose by the OPM Training Within Industry authorities in the Pennsylvania, Ohio, and West Virginia districts.

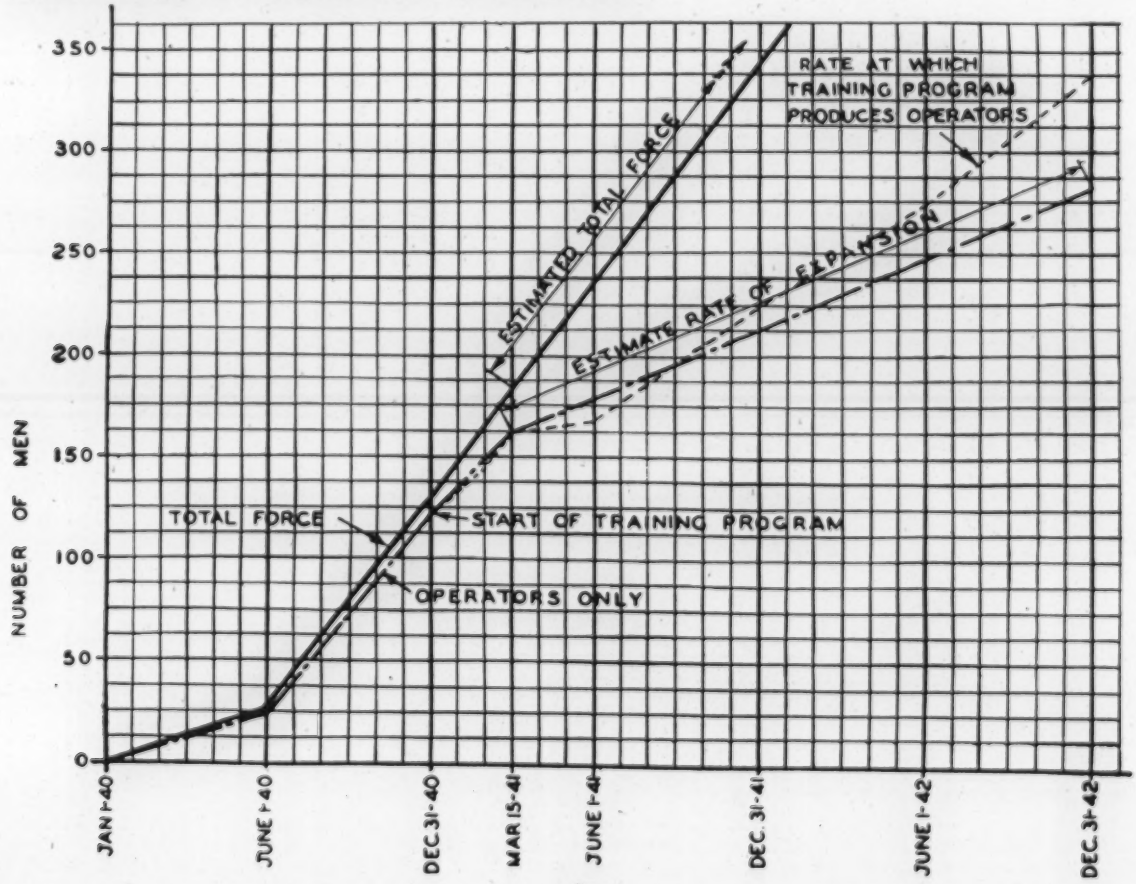
General

One of the principal activities in which the staff of the Education and Training Division participate covers the development of objective knowledge tests for purposes of (*a*) stimulating employee's self-improvement, and (*b*) to measure job knowledge or proficiency.

The company maintains a close relationship with universities, vocational schools, correspondence schools, and other agencies for the purpose of promoting employee educational activities. The chief of the Education and Training Division serves as a member of the Training Within Industry Panel for Pennsylvania and the company cooperates in all special emergency training projects.

EXHIBIT III

Typical analysis of a department's training needs.



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WAR PRODUCTION BOARD

Labor Division

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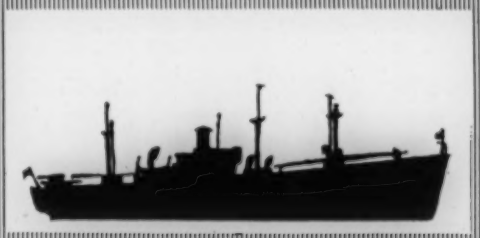
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U. S. GOVERNMENT PRINTING OFFICE: 1942



BUILDING SHIPS FASTER THROUGH TRAINING

Training for the Electrical Department of a Shipyard

. . . . . Example No. 100

TRAINING WITHIN INDUSTRY

WAR PRODUCTION BOARD

LABOR DIVISION

TRAINING WITHIN INDUSTRY
Labor Division
WAR PRODUCTION BOARD
Washington, D. C.

TRAINING IN SHIPYARDS

The purpose of this series of bulletins is to help shipyard managements man their yards with competent workmen, under present-day conditions.

Management's most pressing problem today is manpower . . . the manpower with which to contribute its share of three launchings a day. But, manpower at this time means using inexperienced men, most of whom have never seen a shipyard. On them management must depend to build more ships.

Some yards, however, are getting amazing results with beginners. Good ships are being completed in record time with working forces composed largely of men who were totally inexperienced some months before. Planned, short-term training and specialized operations are chiefly responsible. These are the same methods that have enabled other war industries to multiply again and again their output of tanks, guns, and planes.

The experience of shipyards that are most successful with these methods is being analyzed and recorded by Training Within Industry for the benefit of other yards that have similar problems.

This bulletin describes the practices that a large yard on the Atlantic coast employs to expand the working force in its electrical department.

C. R. Dooley, *Director,*
Training Within Industry.

(See page 44 for Contents)

Training for the Electrical Department of a Shipyard

Most shipyards today are seriously handicapped by a shortage of marine electricians and helpers. Realizing that training inexperienced men is their only hope, a number of yards have undertaken short-term training in one form or other.

The various methods they employ produce results that differ greatly, measured from the standpoint of developing capable workmen in the shortest possible time. Worthy of study is the approach of a particular yard where a large volume of electrical installation work is done and much of it is complicated.

Although a staunch advocate of apprenticeship, with a present apprentice enrollment exceeding 1,000, this yard when it comes to short-term, specialized training in today's emergency has but one criterion. It is this: The most direct path from the beginner to the competent specialist. This implies elimination of all nonessentials and using planned training of a very practical nature. The methods this yard employs and the reasons for them are set forth in this bulletin.

Methods Are Based on Long Experience

The shipyard in question is one of the large yards on the Atlantic coast. It was established a half century ago and is devoted at the present time to building and repairing fighting ships and naval auxiliaries. The highest standards of marine workmanship are maintained. In this report, it is referred to as Yard "A."

Flexibility in the electrical department working force is essential, for work assignments cover a wide range, and quick adaptation to the ever-changing run of work in the yard is necessary. Various grades of skill in the working force are indispensable.

Shortage of Skilled Men Faced Realistically

During the last 3 years, Yard A has expanded enormously and the volume of electrical work has grown to large proportions. At the same time, the supply of marine electricians steadily dwindled and almost none have been available for many months. Faced with this situation, the company analyzed the unit operations and the grades of skill involved in making electrical installations on ships. The findings showed that the work represented by 80 percent of the total man-hours required to wire a ship called for only elementary skill. Further, that inexperienced men could do this work competently and efficiently after they had had a little training. Recognition of this simple fact has contributed largely to Yard A's success in keeping ahead of an ever-increasing volume of electrical work.

Beginners Quickly Become Productive

At first, the training of inexperienced men and their assignment to operations was informal, but as their numbers grew these arrangements took concrete form and definite procedures were crystallized. Under these arrangements, hundreds of inexperienced men have been prepared for simple specialized duties, and later, through work experience and subsequent training of a more advanced order, they have mastered increasingly difficult operations. Thus, step by step, the entire electrical force has been trained in sound installation practice and in the company's methods and standards. In consequence, the whole range of skills needed to wire ships efficiently from simplest to most advanced are available in the working force.

Company A's plan for the short-term training of operation specialists is founded on mature experience with apprenticeship training. For over a quarter of a century, Yard A has conducted a comprehensive program of apprenticeship, and training has become traditional in the organization.

Proof of the soundness of this approach to manning the electrical department is that at no time has this branch of the yard delayed completion of a ship, and the high quality of workmanship for which the yard is known has always been maintained.

Electricians With Shore Experience Adapted to Marine Requirements

In addition to beginners, this yard attracts many so-called "shore" electricians—journeymen who have been engaged in installing wiring and equipment in factories and dwellings, and on construction, or in performing maintenance duties. The land work-experience of these electricians differs from the standards and methods employed in marine work, so of necessity they pass through a process of adaptation, either as they work on the job or through the medium of brief introductory training. Yard A leans strongly to the latter and all new electrical journeymen who do not have marine experience are required to take adaptation training. Important time savings in performing the new duties during the first few months have been noted when newly employed shore electricians receive this training as compared with "picking up" marine practice as best they can.

The adaptation of shore electricians to marine methods is described in Part II of this bulletin, beginning on page 19, while the training of beginners is dealt with in Part I.

Although the training practices described are those of a large yard, they are equally applicable to yards operating on a smaller scale and to electrical departments where the work is less varied and not as complicated.

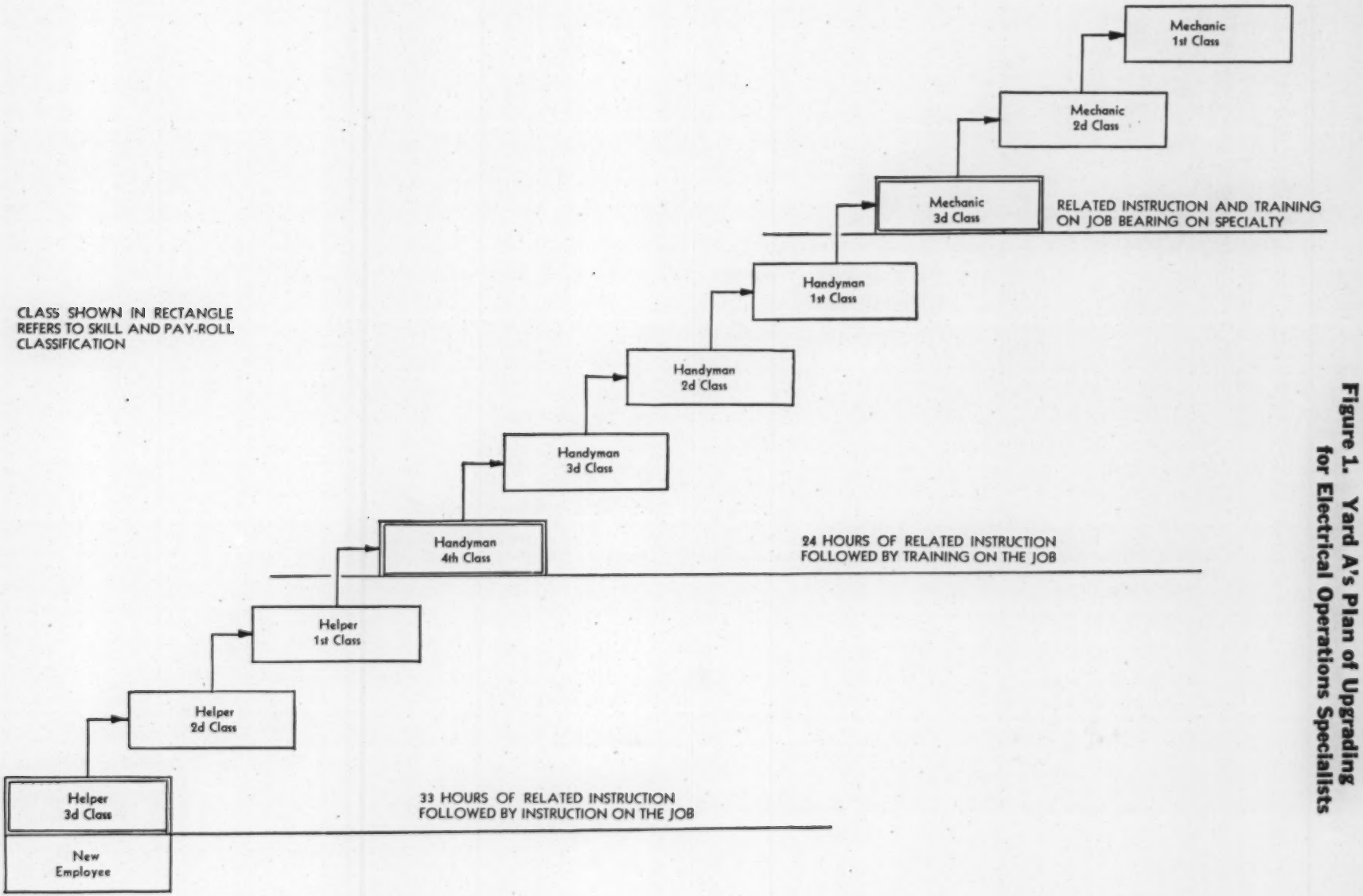
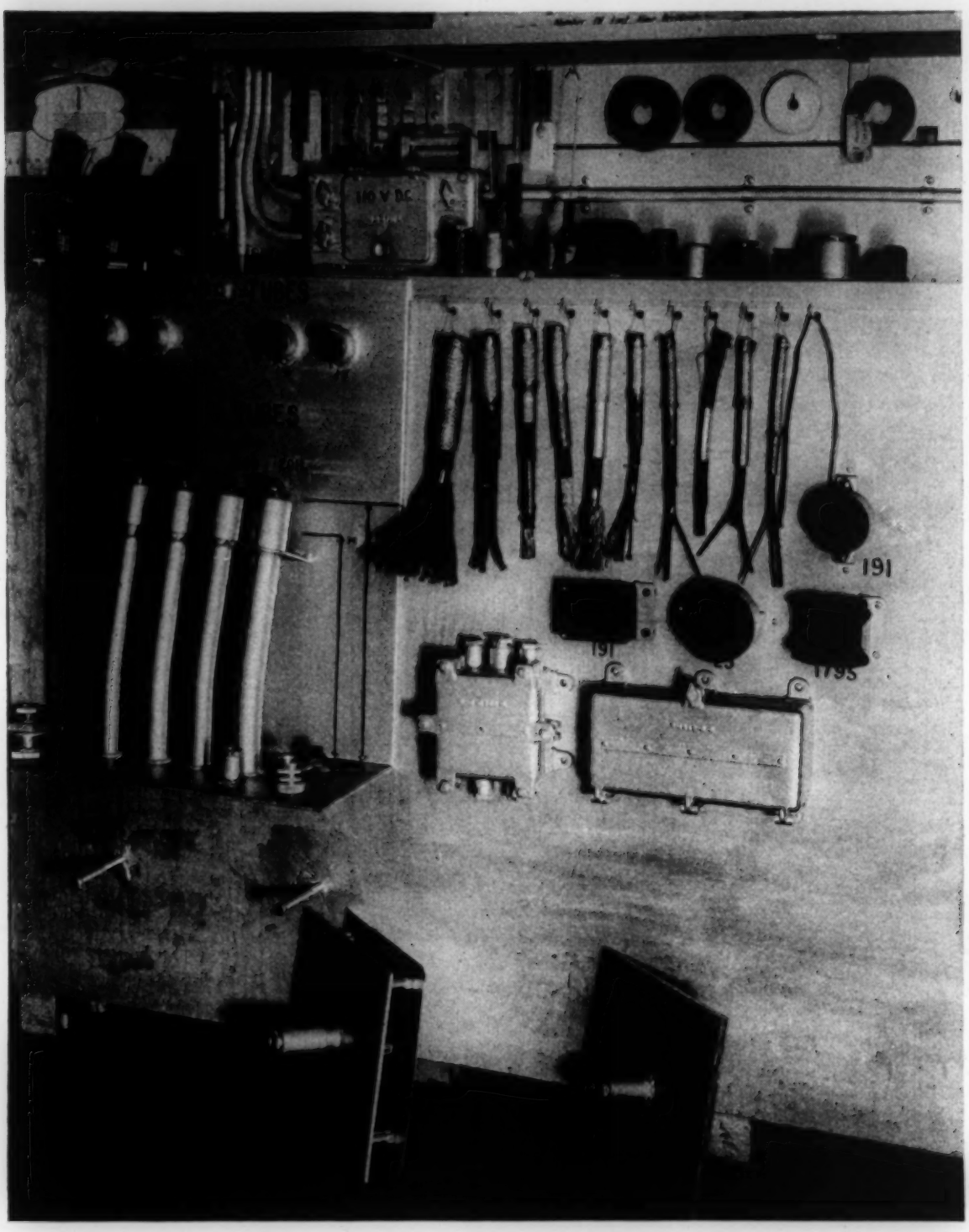


Figure 1. Yard A's Plan of Upgrading for Electrical Operations Specialists

Figure 2—Typical wiring materials and fixtures used on ships



At the start of his related instruction, the beginner is shown the various materials and devices that go into the making of a marine wiring installation. The object is to give him a quick, over-all introductory "picture." On succeeding days, the use and manner of installation are taken up in detail.

PART I

Training Beginners and Upgrading Employees for Operations Specialists Job

All who come to work in Yard A's electrical department spend some time in the Electrical Training Section. Regardless of whether the new employee is a beginner or a journeyman, he receives some form of training in the section before going to work on a ship.

The yard's electrical training activities are all carried on under the auspices of the section which is a unit of the over-all Training Department. The development of electrical operations specialists follows this basic pattern: Training on-the-job aboard ship, with which is dovetailed a certain amount of directly related training and some shop practice, all tied together under a plan of upgrading.

Training for the Electrical Department is all done in the yard by the company, for the company firmly believes that it must train its men itself.

Yard A has three grades of electrical operations specialists: "Helper," "handyman," "mechanic." Beginning with those that call for the least skill, the three grades represent operations of increasing difficulty up to the journeyman level. Specialists do not develop the qualifications of the journeyman electrician who is proficient in all branches of the trade. Specialists, usually, are competent in only one branch.

Train Three Types of Specialists

It follows, then, that Yard A's short-term training is of three types:

The *first* is for beginners. The majority of new men on entering the yard have no knowledge of electricity or how wiring is done. The object of the training is to enable them to serve usefully, and with rapidly increasing efficiency, as so-called "helpers." Their job on the ship is to do the simpler forms of installation work. A good deal of this is ordinary manual labor such as pulling cables and drilling holes.

The *second type* of training is directed to developing so-called "handymen." They, also, are electrical operations specialists but of a more advanced type than the helpers. Candidates for this group are competent helpers who have worked 3 to 6 months in that capacity and who show promise of being able to do electrical work of a semiskilled nature after training. The second type of training prepares them for this. It is intermediate in grade and not very technical.

The *third type* of training is still more advanced. It prepares handymen of promise to become proficient as so-called "mechanics," the top rank in the operations specialist category. The large volume of electrical installation work handled by Yard A led to the development of single-purpose "mechanics." These employees, on advancing from the handyman class, become specialists in one particular branch of all-around electrical work, such as interior communication, or lighting, or motor control, or installing auxiliary equipment. They are the cream of the crop among handymen, having shown aptitude and ambition to rise higher. Their training is highly specialized, with regard both to related instruction and to that given on the job.

Concerning the latter, their work assignments are in the branch of electrical installation for which they are being prepared. They do not correspond to journeymen electricians, except in one respect: In the particular line of electrical work in which they have been trained, they are the journeyman's equal in skill or they may even excel. But they do not have the all-around electrical qualifications characteristic of the accomplished journeyman who is proficient in any branch of the trade.

Everyone in training, regardless of status, receives the same pay while in training as he received for his pay-roll classification while on the job.

Operations and Job Skills Analyzed

A brief sketch of the evolution of Yard A's electrical training activity will help one to understand more readily its plan for training inexperienced newcomers and for upgrading existing employees after suitable training.

When Company A was faced with a serious shortage of electricians some time ago and it was realized that the situation would grow critical as the yard was expanded, a study was made of the problem. Sponsored jointly by the Electrical, Personnel, and Training Departments, the study took stock of the operations and the grades of skill called for in wiring ships. Attention was given as well to operations that were similar and capable of being grouped and carried out at the same time. The study showed that the work represented by 80 percent of the man-hours required to wire a ship and install its electrical equipment could be done competently by inexperienced men who had received short-term training; and that the work represented by the other 20 percent of the man-hours could be done properly only by qualified all-around marine electricians.

The study also demonstrated conclusively that the shortage of all-around skilled men could be overcome to a considerable extent by using men without experience, provided the following measures were taken:

(*a*) The operations that could be performed by inexperienced men (after having received training) were separated from those that only the all-around journeyman could do satisfactorily.

(*b*) Work assignments in the Electrical Department were rearranged so (1) the highly skilled men would spend practically all of their time on work requiring top electrical skill; (2) those with lesser and intermediate skills would devote their energies to semiskilled duties; and (3) those with minimum qualifications would take care of the simple operations.

(*c*) Suitable short-term training was given beginners so they would qualify for the simpler operations specialist jobs; and training for successively higher skilled operations jobs was provided.

(*d*) A plan for upgrading was provided to enable each employee to advance as rapidly as his ability and ambition (and the run of work in the yard) would permit and to offer an incentive to develop higher skill.

(*e*) The additional supervision and inspection needed with specialized operations were provided.

The wisdom of these findings is obvious. In every ship to be wired, there are long runs of cable to be pulled, thousands of holes to be drilled and threaded, countless hangers and racks to be measured and mounted. Most of this is simple manual work. No all-around electrical skill is involved beyond taking certain precautions. Also, there is a great deal of work to be done that is of semiskilled grade.

Action Taken on Findings

In order to give action to these findings, the jobs involved in wiring ships were listed according to their difficulty, from the simplest to the most complex. In this analysis, consideration was given to sequence in outfitting the ship and the fact that most of the electrical wiring and equipment were installed after launching. Attention was given also to time economies which could be effected by performing similar operations at the same time.

The simpler jobs were then grouped and analyzed for training content. These were allocated to beginners. The next more difficult were designated for those with more experience and skill. This process was continued until all jobs in the list had been classified and allocated.

Since this forward plan of wiring ships was adopted, it has undergone continual improvement but the fundamentals have not changed. Changes have been a matter of refinement and cutting down nonessentials. The outcome is that the Electrical Department now has a simple classification of operations specialist jobs which fits the yard's work requirements and provides suitable financial recognition for the different grades of skill. The basis for this plan of upgrading operations specialists is made clear on the chart, Figure 1. The three basic grades—helper, handyman, mechanic—are shown in relation, as well as intermediate values of skill. The latter are recognized on the pay-roll classification by designations, as class 3, class 2, class 1, etc.

Plan of Training and Upgrading

Upgrading, briefly, is as follows: On reporting for duty at the yard, the beginner spends the first 33 work hours in the Electrical Training Section. Here, he is given company background

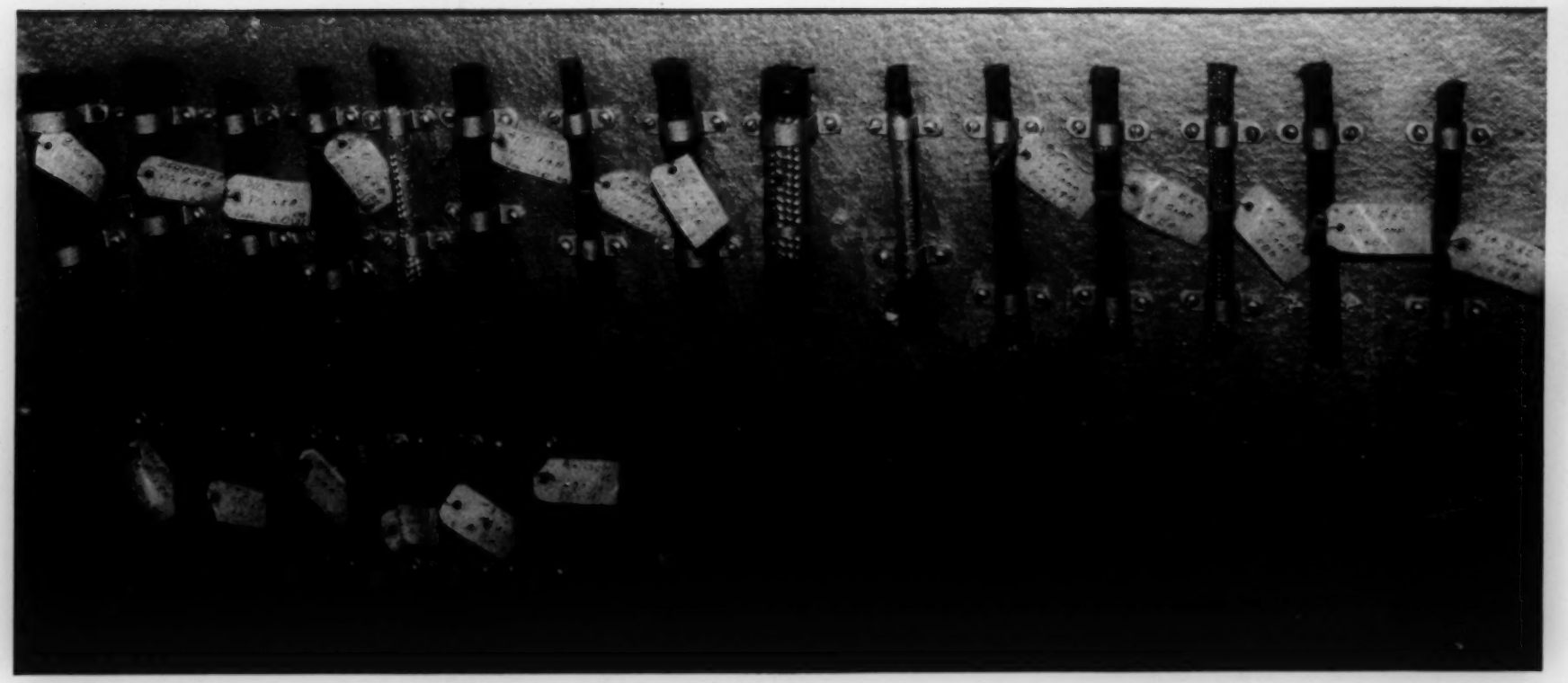


Figure 3—Typical cables used in wiring ships

The collection of cable samples, illustrated above, has a definite role in the beginner's related training. The instructor uses it to demonstrate how to identify the various types of cables installed in ships and to help the beginner understand their construction and use.

and enough "know-how" to be useful from the start. He learns something about running cables, putting up hangers and racks, mounting distribution boxes, etc. Then he is sent to a ship (step 2) where he may be assigned to a "bull-gang" doing heavy work, or to a journeyman or handyman whom he serves as helper. In any case, he works under the guidance of a working instructor-supervisor. This stage usually takes 3 to 6 months.

Third step (if he has shown capacity and ambition) is his return to the Training Section. Here he receives 24 additional hours of related instruction and shop practice, all intensely practical as before. The training is preparatory to on-the-job training he will receive on board ship to prepare for duties as a handyman. The 3 days spent in this fashion are devoted chiefly to blueprint reading, practice in laying out circuits, connecting circuits, installing fixtures, etc.

This period of related instruction completed, he goes back to a ship (step 4) and takes his place in a group that does work of a semiskilled nature. Under the guidance of his working instructor-supervisor, he moves forward from one type of operations to others that are progressively more complex. In time (sometimes fairly soon), he reaches the payroll rank of Handyman, Third Class. At this stage, he may be competent to work on his own, with only moderate supervision, and may have a helper to assist him.

Among the many who become handymen, a number show capacity to be candidates for advancement to the rank of "mechanic." These handymen are earmarked and undergo further training and upgrading (step 5), from which they emerge as competent mechanics (step 6). As such, each is a fully qualified specialist in some one branch of electrical installation work. Training for step 5 consists of:

Work assignments in the field for which he is being prepared.

Suitable instruction on the job.

Special related and practice training in the Training Section.

Supplementary related instruction.

Those who qualify as proficient mechanics receive suitable financial recognition.

The three types of production specialists described so far—helpers, handymen, mechanics—actually do all of the work in wiring a ship that is represented by the 80 percent of the total electrical work hours. The other 20 percent of the work is the province of the journeyman electrician. Only his all-around development and seasoned judgment are equal to the higher skills required for such operations as laying out circuits, "spotting" electrical auxiliary equipment, installing control equipment, making "hook-ups," testing out, trouble shooting, supervising, instructing, etc.

Initial 33 Hours of Related Instruction

The 33-hour related training for the beginner is designed to accomplish these ends:

Give him a correct impression of the company.

Help him to understand from the outset how he is paid, the welfare arrangements, precautions for safety, etc.

Acquaint him with the materials he will work with at first and their installation.

Give him just enough shop practice in the first operations he will perform on board ship to enable him to "slip" readily into the new work.

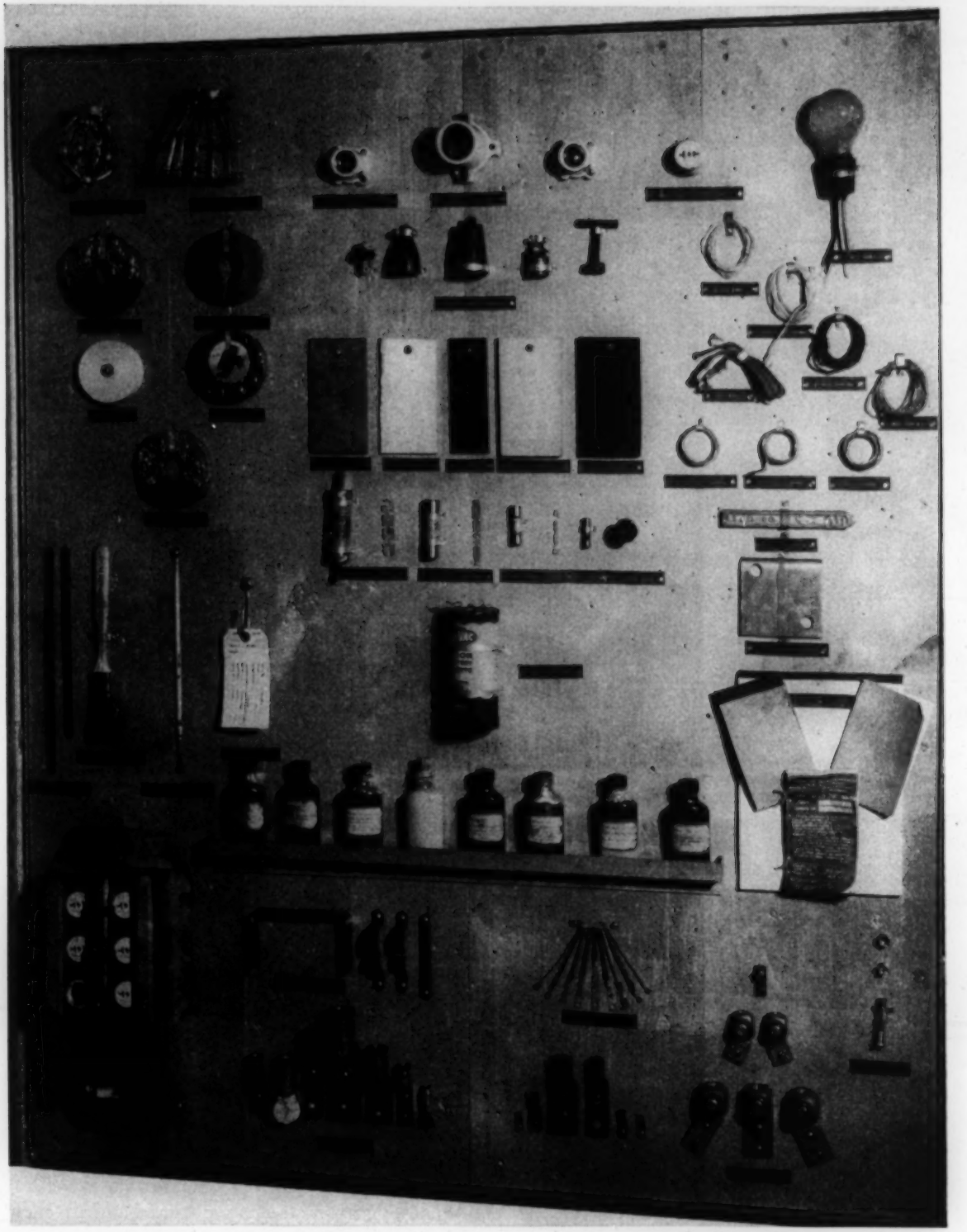
Teach him how to handle materials and equipment without damaging them.

Show him where to find in the Electrician's Ship Handbook (prepared by the company) the data he needs in the day's work.

When this training has been supplied, it has been observed that less supervision is needed and less time is lost during the first 5 or 6 months the beginner is on the job. Also, that this training advances the beginner's usefulness in other ways by 5 or 6 months.

Part of the 33-hour initial training is manipulative practice which is alternated with lectures and demonstrations. The Training Section is equipped with tools, work benches, and scrap material, in addition to seats, tables, and blackboards. Of great value as instruction aids are several display panels on which are mounted typical cables, supplies, and fixtures. Several of the panels exemplify correct cable and fixture installations, and two of them are arranged for layout practice. A number of these instruction aids are illustrated in this bulletin (see Figures

Figure 4—Wiring supplies commonly used in marine work



Many new men come to the yard without the slightest knowledge of the simple items used repeatedly in the day's work. . . . The panel display illustrated above and the explanations given by the instructor fix in the new employee's mind background knowledge that avoids time-consuming mistakes in the day's work.

2, 3, 4, 5, 6, 7, 8, 12, 20, and 21). The panels, with one or two exceptions, were designed to represent sections of bulkheads and decks and the two in combination.

The Electrical Training Section is governed by a single purpose—to employ only those methods and supply only such information as are of direct and practical value in preparing a new man for the work he will be engaged in. Especially is this true of the training for operations specialists, where the trend is continually to trim down the training content. One item after another which failed to contribute *directly* to the development of the man for the job he was to fill has been dropped.

In the minds of Yard A's training heads, electrical fundamentals and theory have their place and their value is recognized. Under existing emergency conditions, however, when every usable man should be put to work productively as speedily as possible, they believe that theory and laboratory practice can be dispensed with in the case of beginners whose work is to pull cable, drill holes, mount hangers, tape joints, etc. On the other hand, employees are encouraged to broaden their understanding of the work they are engaged in by studying in their spare time. For this purpose, the company has helped provide courses in electricity which are offered in the local schools under Engineering, Science, and Management Defense Training auspices during off-work hours. But in regard to the large number of inexperienced men who must be qualified to become proficient in a very short time, the situation dictates that nothing but a practical and direct approach to wiring the ship be employed.

Content of the 33-Hour Program

Six distinct steps comprise the 33-hour initial training given beginners before starting to work on a ship. The steps and the approximate time devoted to each are:

1. Orientation—3 hours.
2. Typical wiring materials—4 hours.
3. The installation of cables—16 hours.
4. The Electrician's Ship Handbook—6 hours.
5. Installation of equipment—2 hours.
6. Material control—2 hours.

1. *Orientation.*

Every new employee who is to work in the Electrical Department, on reporting for duty, goes first to the Personnel Department. Here he passes through the usual procedures of physical examination, being photographed and fingerprinted, etc.

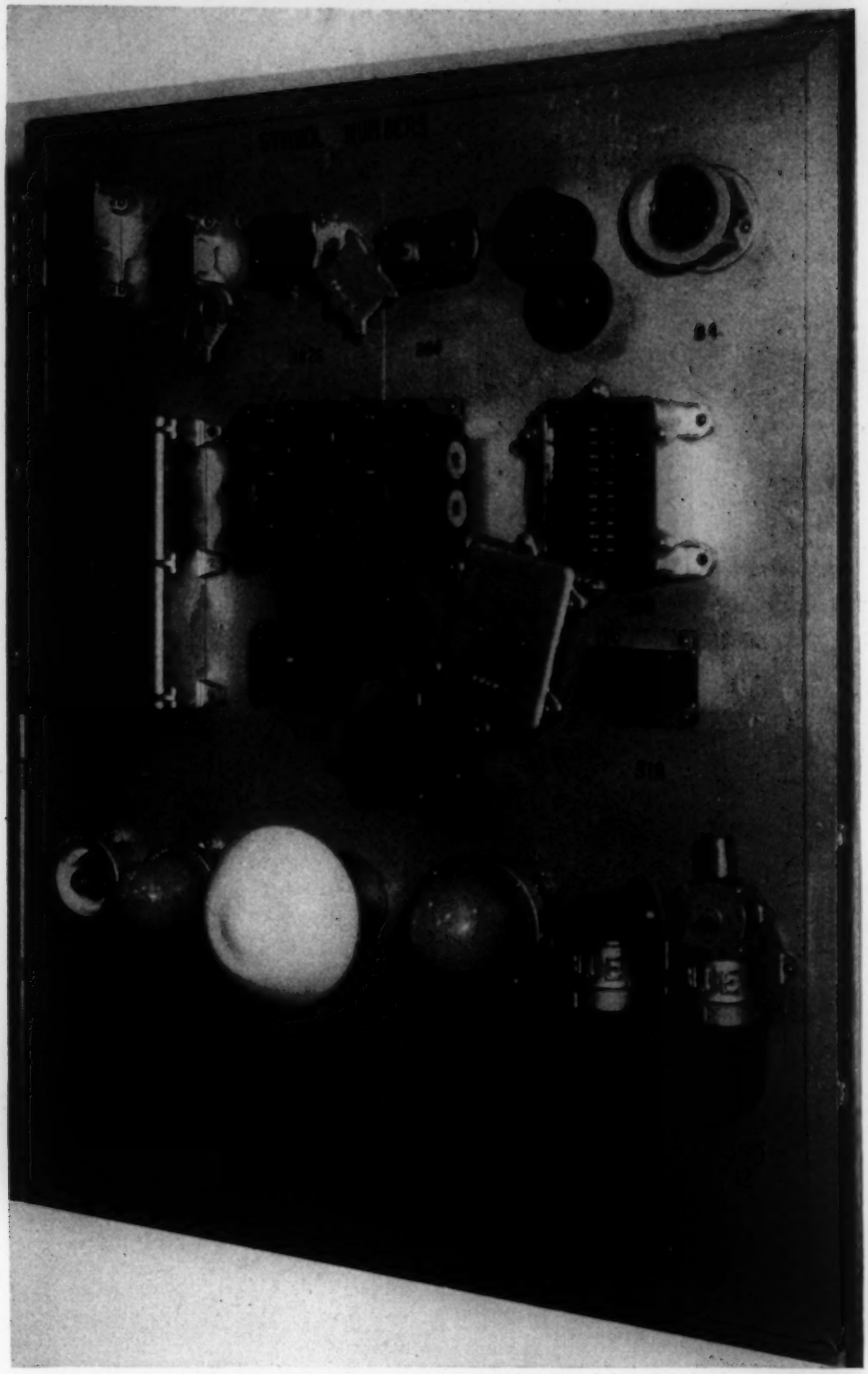
First impressions are lasting, as a rule, and the management believes newcomers should be helped to form a correct impression of the company at the outset. Also, that it should be made easy for the newcomer to understand quickly the routines that affect him personally, such as the manner in which he is paid, insurance privileges, clinic facilities, etc. Further, a large proportion of new men taken on, even shore electricians, have never been in a shipyard before. Obviously, the new employee should learn how to find his way about the ship and the yard. Ship terminology is also important.

> The 3-hour orientation process begins with describing to the newcomer the line of authority in the Electrical Department. It is traced for him from the foreman (who is the head of the department) to the assistant foreman, through to the supervisor, the journeyman, and the handyman in turn, and finally to him, the helper. Next, the beginner is shown how to figure his pay check including any allowance for night-shift duty; the method of reckoning pay for piece work is also explained.
>
> Then follows an explanation of—how his working time is kept track of, how to check in and check out, the method of time study in relation to piecework rates. Subsequently, the following are taken up—welfare arrangements, workmen's compensation, group insurance (life and accident), medical treatment, etc.

General safety rules are stressed and individual safety precautions are discussed in detail. In addition to the booklet of yard safety instructions, the newcomer receives a copy of Electrical Department Safety Rules and Precautions. These are reproduced in the supplement to this bulletin, Part III. Consideration is also given to the tools the beginner should have, as well as to how company tools are obtained and the care to be taken when handling shop equipment.

The layout of the yard is explained and a rapid tour made of the shops, dry docks, piers, shipways, and offices; also, of the toolrooms and storerooms he will go to in the day's work. Ship

Figure 5—Fixture types in common use



Not only the fixtures but the reference symbols and numbers appear on the panel illustrated above, so the handyman in training may visualize them in reading the blueprint and the Electrician's Ship Handbook. In addition, the interior connections are explained. The distribution box at left center was left as received from the manufacturer in order to afford practice in laying out the branch circuit openings to be drilled.

locations are pointed out on charts, and ship terms are defined. Yard A has compiled a list of ship terms in common usage in shipyards. This list is reproduced in Part III of this bulletin, entitled Ship Terms and Their Definitions.

2. *Typical Wiring Materials.*

The display panels of typical marine wiring materials and supplies illustrated in Figure 2 is the background for this introductory instruction. The distinguishing features of the three basic types of cables—light and power, communication and telephone—are pointed out. Their distinguishing characteristics with reference to size, carrying capacity, voltage, and application are established. The display panel, Figure 3, provides sample cables for making these distinctions clear. Detailed attention is given to types of tubes and the structural conditions in bulkheads and decks to which each applies. Later, practice is given in proper cable and tube installation.

Similarly, clamps, lugs, fixtures, packing, paints, hangers, pads, and stools are taken up in turn. The panels shown in Figures 4 and 5 are employed in this connection. The object is to give the newcomer a quick over-all view of the components that go into the making of a marine wiring installation. Later in the training, each is considered individually in greater detail.

3. *Installation of Cables.*

In order that the new man shall have the "feel" of the work he will do with cables and tubes, he spends two full days in manipulative practice, devoted to proper installation methods. Among the operations covered are these: How to handle, measure, cut, pull, mount, serve, and connect cable of various sizes. The correct installation of tubes and the proper attachment of terminal lugs receive equal attention.

Throughout, the techniques and information are intensely practical. The display panels shown in Figures 6 and 7—two of the instruction aids in constant use during this phase of instruction—are indicative of the approach. Key points in proper and efficient performance of the operations are stressed.

Practical considerations such as these characterize the instruction—allowances to be added to blueprint dimensions when cutting cable; judgment to be exercised in selecting cable lengths in order to avoid waste when cutting cable; tightness of hangers in securing the cable; protection of the basket-weave armor; taking up slack, etc. Permissible radii when bending cable (see Figure 10), proper tools, care to be taken to avoid damage, etc., are other examples.

Figure 11 shows a beginner engaged in manipulative practice to develop skill in cutting and dressing a cable, under the guidance of a Training Section instructor.

Special emphasis is placed on the installation of tubes and on packing them. This finds expression in manipulative practice and in the pains taken to impart a clear understanding of the types to be used under water-tight and nonwater-tight conditions, and with regard to structural features of the bulkhead or deck. Extensive use is made of two display panels devoted to tubes and packing. One of them is illustrated in Figure 12. The packing of tubes is gone into thoroughly.

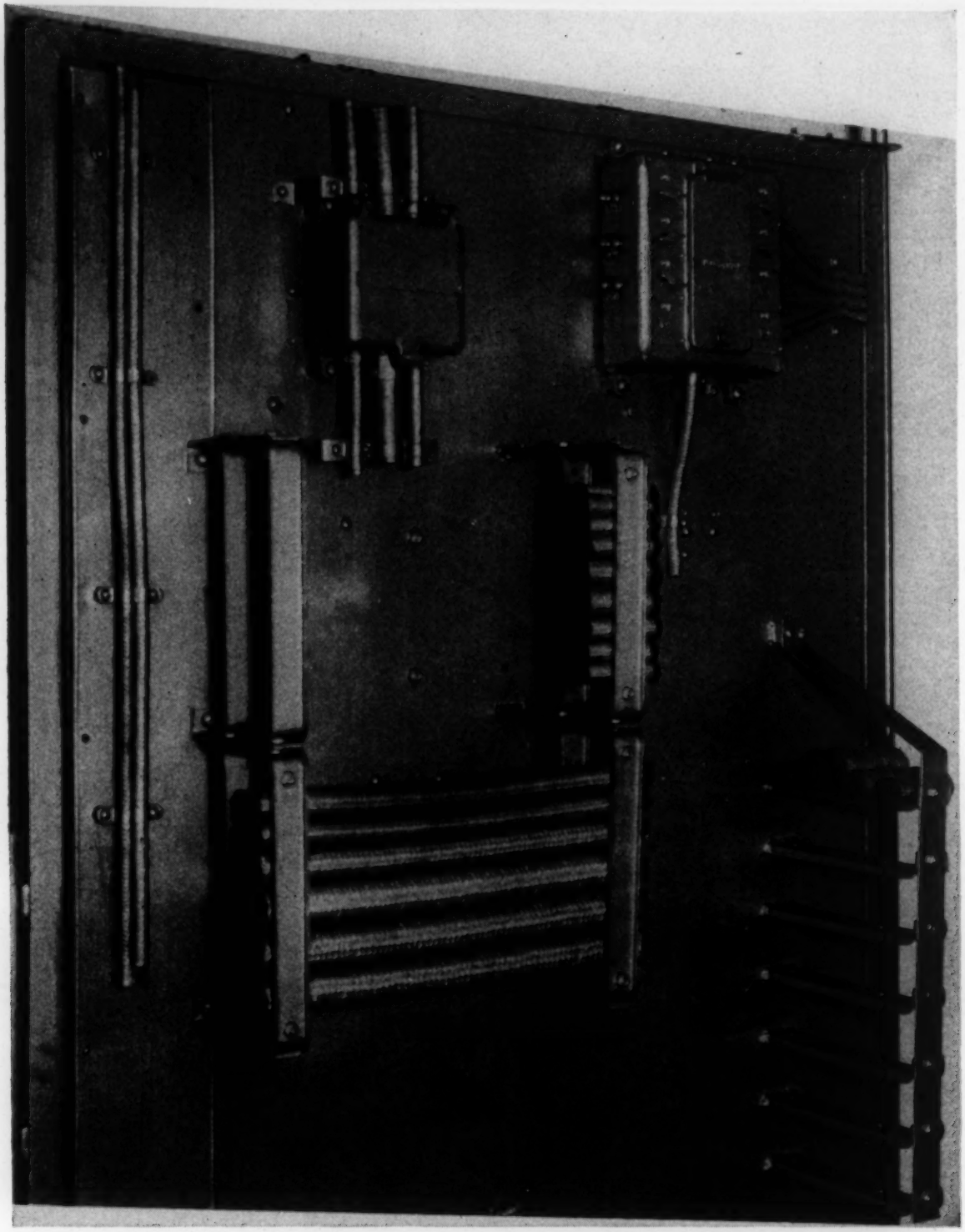
4. *Electrician's Ship Handbook.*

For every type of ship to be wired, it is the company's practice to prepare an Electrician's Ship Handbook for use by electrical workmen in the day's work. The handbook is a condensed compilation of data taken from the ship's electrical blueprints and of shop data from other sources. These tables are based on the Marine Electrical Code of the A. I. E. E. All employees engaged in electrical work on the ship receive a copy. A practical working tool that is in constant use, it is a time-saver in a large and complex yard. The front cover and table of contents are shown in Figure 13. Typical pages are reproduced in Figures 14, 16, 17, and 18.

Since the handbook lists the specific cables, circuits, clearances, spacings, locations, and other requirements that govern the wiring of the ship, it is the very core of manipulative practice in the Training Section. Beginners are taught where to look for the information they need, and how to use it in connection with their job assignments. The types of cables and of tubes to be used, how to locate holes, the sizes of holes, how to prepare sketches for making hangers, and many other points are explained and demonstrated. A typical problem intended to develop correct habits in this respect is shown in Figure 15.

Actual structural situations typical of those that continually arise in the day's work are taken up in the form of problems in order to give the beginner

Figure 6—Mounting and anchoring cables



Representative methods of mounting cable racks and securing cables are displayed on the panel illustrated above. The proper method of installing cables under various typical conditions is demonstrated by the instructor. The two vertical cables at the left are an example: they are mounted on a bulkhead section that carries heat insulation.

practice. One of these problems is shown in Figure 19. This one, it happens, was selected to test out a beginner's grasp of use of the handbook.

5. *Installation of Equipment.*

The unpacking and inspection of electrical auxiliary equipment to be installed, and the precautions to be taken, are reviewed in a 2-hour session. Following are highlights:

Unpack on the pier. Avoid damage to equipment. Look out for fire hazards. See that there is no inflammable material around on the pier or once the equipment is on the ship.

Make a thorough inspection. Check to see that all parts have been received. Save all instruction sheets.

When equipment has been placed on the ship, see that it can't be knocked over. See that all bolts and nuts are tight. See that the equipment will not be damaged readily by other workmen in the course of their duties; protect glass, delicate parts.

Protect equipment against fire, moisture, and rats. Rat-proof motors so rats do not get inside of them.

Make template for equipment that is too heavy to be removed easily.

6. *Material Control.*

The facilities and routines for delivering materials from storerooms to the receiving station nearest the ship are explained. The man in training is introduced to individuals in other departments with whom he will have frequent contact, as the "material man," the "transportation man," etc.

Begins On-the-Job Training

By the time the practical information and shop practice described have been covered, the 33-hour schedule has been completed. The beginner then is assigned to a ship where he starts his on-the-job training. He may become a member of a bull-gang at first or, more likely, be sent to a journeyman or handyman to work with him as a helper. In this new phase of his training, he has at his call the assistance of a working instructor-supervisor. These instructors devote as much time as is needed to training helpers and handymen on their jobs.

They have been carefully selected with regard to teaching and personality qualifications, as well as supervisory ability. Prior to functioning in this capacity, they received job-instruction training and are well grounded in this technique. In regard to job instruction, they function in close association with the head of the Electrical Training Section who is responsible, jointly with the head of the Electrical Department, for all aspects of training. Supervisors who serve in an instructor capacity receive additional pay for the hours spent in giving training.

The 24-Hour Instruction Program

It will be recalled that helpers who show the capacity for doing more highly skilled work are offered the opportunity of returning to the Training Section after several months on the job, preliminary to further upgrading. There they receive 24 hours of intensive related instruction, with a little practice, and become candidates for the grade of handyman, third class.

A great deal of ground is covered in the 3 days spent in the Training Section. Instruction is given in the fundamentals of circuits and hook-ups, laying out circuits, spotting locations for auxiliary electrical equipment, and testing. In addition, as much time as possible is devoted to the practical aspects of blueprint reading, and to making broader use of the Electrician's Ship Handbook. Display panels of the type shown in Figure 7 are used freely. In the succeeding paragraphs, an attempt is made to outline briefly the ground covered.

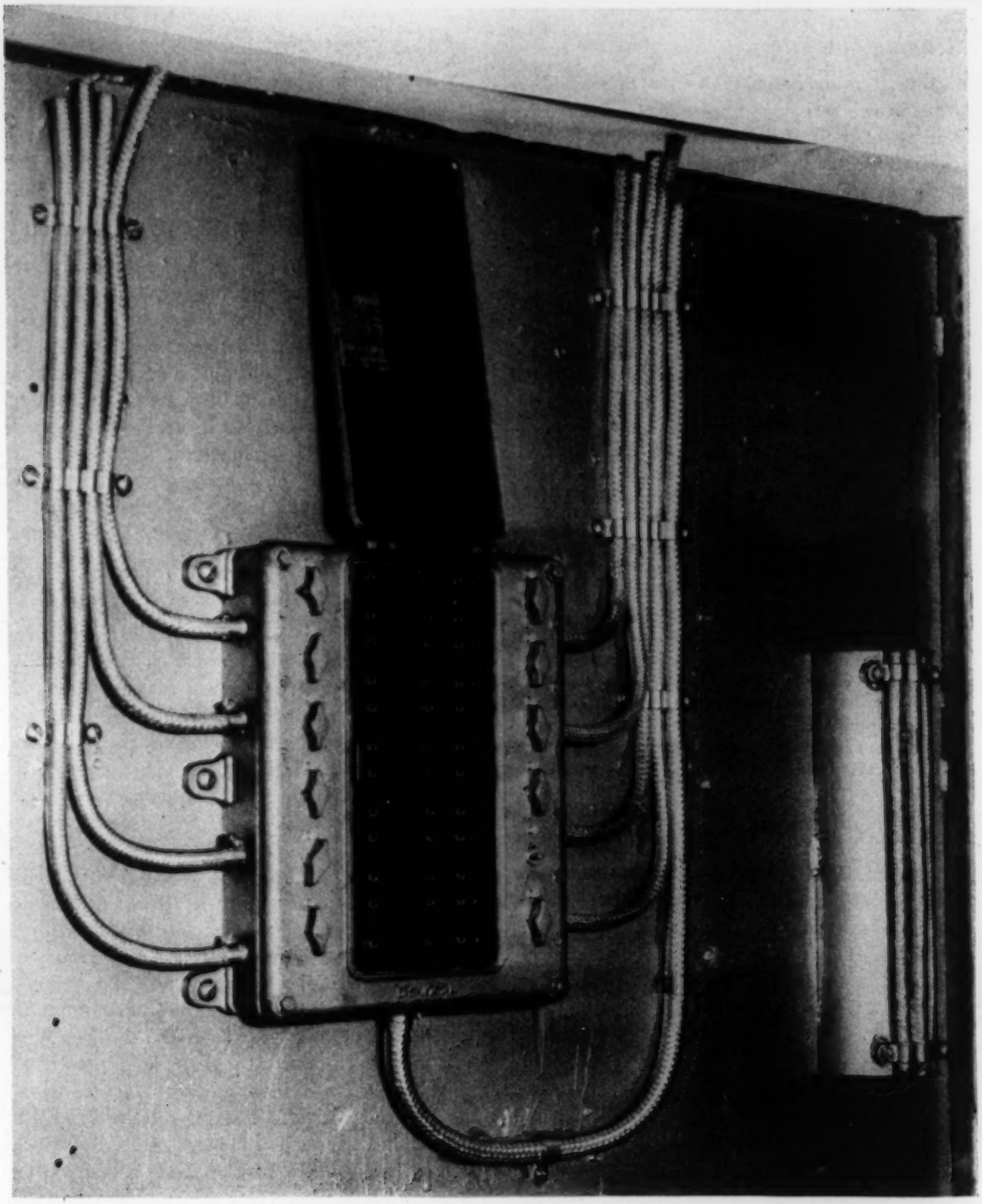
Circuits.

With the help of blackboard demonstrations and talks, the fundamental concepts of polarity, voltage, current, resistance, and circuits (series and parallel) are reviewed. Lighting circuits (single and double-pole switch controlled, three-way and four-way) and simple power circuits are visualized and explained. The manner of making connections in distribution boxes is covered.

Testing.

Practice is given in testing circuits for identification and continuity, mostly with bell-and-battery and with the telephone head-set. For this, use is made of a 20-pair cable, 40 feet long. Experience in using the test lamp and the magneto is also afforded.

Figure 7—Installation of non-watertight distribution boxes



A simple type of marine installation that occurs frequently on ships. This distribution box with feeder and branch circuits was assembled to give the helper-in-the-making an understanding of its proper installation. Section at right center shows correct method of attaching cables to stanchions. Exhibit panels in the Electrical Training Section were designed to represent sections of bulkheads or decks or both together.

Reading Blueprints.

A clear understanding of how to read blueprints is deemed most important. The particular use of each of these types of prints is clarified—elementary prints; wiring diagrams; isometric prints; location plans (for equipment). Instruction and practice are given in how to read them as well as how to scale off dimensions from conventional prints.

Also, help is given in translating symbols into actual physical form. The samples of materials, supplies, and fixtures on the display panels are used freely in this connection. Circuits shown on the prints are traced; hook-ups are explained.

The man in training is further posted on the detail drawings of panel layouts (and their markings) and manufacturers' drawings which accompany equipment. If a compartment is occupied largely by equipment, he is brought up to check the arrangement plans first.

Emphasis is placed on systematic cross checking of blueprints, checking serial numbers with handbook, reading notes, looking up reference plans, etc. He is taught how to pick up ship locations from bulkhead numbers. He learns how to cooperate with the electrician on the deck above him or across the bulkhead from him. He is also encouraged to cooperate wholeheartedly with the other craftsmen and specialists who are working in the same part of the ship, in some cases working with him as burners, welders, etc.

Electrician's Ship Handbook.

Attention is given especially to the condensed tables of cable specifications, schedules of tube and bushing types, the clamp list, and similar tabulated data which form part of the ship's electrical prints. The man in training is urged to check these tables against the corresponding condensed tables in the Electrician's Ship Handbook.

In the preceding 33-hour program, training in use of the handbook was largely introductory. During the several months' period the man in training worked as helper, he saw the handbook in frequent daily use by others and possibly studied it in his leisure hours. With this better understanding of its place in the day's work, he is now prepared to go into it in greater detail, and benefit more fully from the instruction given.

Laying Out Circuits.

Practice is given in laying out circuits from the blueprints and connecting up. For this, the panels illustrated in Figures 20 and 21 are extensively employed, and frequent reference is made to the Handbook.

Second Phase of Training on the Job

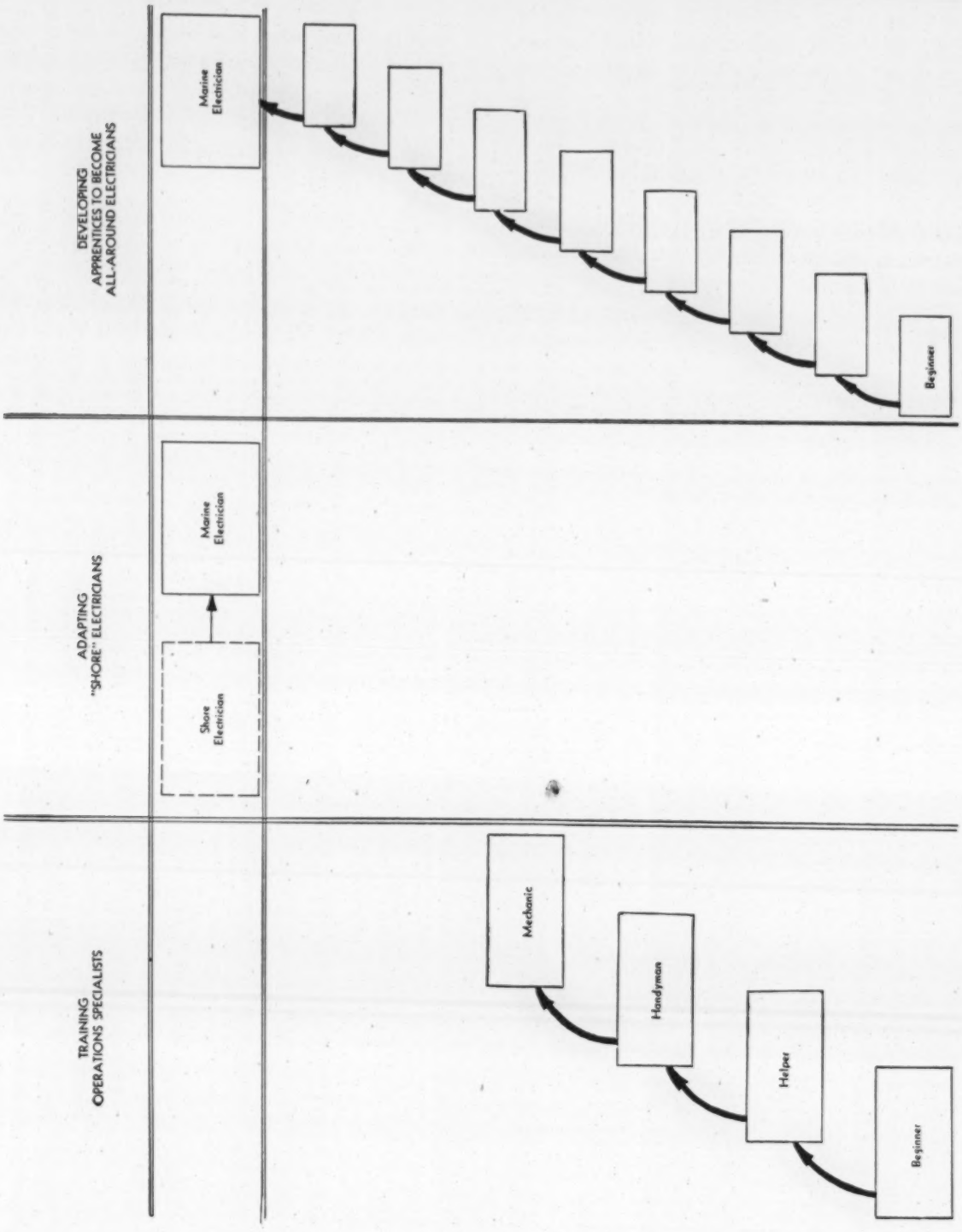
The 24-hour instruction outlined is only preparatory to actual training given on the job. The handyman in training is assigned to a location on a ship, given the blueprints to work from, and placed under the guidance of a working instructor-supervisor. His training assignment at this stage is doing layout work and he is encouraged to try his hand with it freely. With this introduction, he is given other assignments calling for more skill, and is soon "in the groove" for carrying his end of the work and progressing to more difficult operations.

Training Is Traditional in Yard A

All electrical training activities in Yard A are carried on under the auspices of the Electrical Training Section, which is a unit of the yard's Training Department. In addition to being responsible for the development of operations specialists, the Training Section provides the adaptation training for shore electricians. As a third responsibility, the Training Section does much of the developmental training of electrical apprentices. Apprenticeship has been a company tradition for more than half a century, and has been maintained on present lines for more than 25 years. Regardless of the ups and downs in the shipbuilding industry, Yard A continued to train apprentices through the years without interruption. This long background of training on the job has proved invaluable in perfecting the yard's short-term job instruction for operations specialists. All training for the Electrical Department is done in the yard, for Company A firmly believes that its men must be trained by the company itself, and the training must be done on the job.

The three functions of the Training Section are shown in the chart, Figure 8. The development of beginners to serve as electrical operations specialists, and their subsequent training

Figure 8—The three functions of the electrical training section in Yard A



and upgrading to specialist jobs of higher grades, are shown in the left section of the chart. The training of shore journeymen to become efficient marine electricians is indicated in the middle section. At the right is shown in skeleton form the progressive upbringing of the electrical apprentice. The development of apprentices is not covered in this bulletin, which is devoted to short-term training and the adaptation of shore electricians.

The Training Section was deliberately located in the fitting-out section of the yard among the drydocks and piers, where the electrical work is done on ships. The close association between actual work operations on the ships and in the Training Section again finds expression in the atmosphere of the latter. The environment is not that of the classroom or of the laboratory, but is distinctly that of a busy electrical workshops. Figure 9 shows a view of one part of the quarters and facilities where the Training Section carries on its work.

The activities of the Training Section are guided by a single purpose—to employ only those training practices and impart such information as are necessary and usable, and to discard everything of incidental or doubtful value. This is from the standpoint of training efficiently for specific jobs.

Supplementary instruction in electrical theory, blueprint reading, mathematics, etc., is available in evening classes through cooperation of the public school authorities.

Departmental Cooperation

Obviously, the success of a closely joined training operation such as this depends to a large degree upon human factors, notably the relationship between the Electrical and Training Departments. Harmonious relations between the two prevail to a marked degree in Yard A. More than anything else, it is responsible for the continuously successful manning of the yard's electrical force despite the fact that it has more than quadrupled in the past 3 years.

The state of relationships is exemplified in the day-to-day cooperation in supplying men to meet fluctuating needs. Since the types of ships and the kinds of electrical installations and repairs to be made are continually changing, the demand for workmen fluctuates widely. This calls for close coordination between the Personnel, Training, and Electrical Departments.

On occasion, the 33- and 24-hour training schedules must be interrupted temporarily in order to supply enough men with a certain grade of skill for work on the ships at the time they are needed. When that occurs, these men return to the Training Section as soon as the pressure eases up and complete the unfinished part of their 33- or 24-hour instruction. Close track is kept of each man's training history.

Day-by-day cooperation between the Training and Production Departments is expressed in other ways. The Electrician's Ship Handbook already mentioned is a case in point. This handbook, while of value as an instruction medium, is first and foremost a working tool in constant use by all electrical men on ships. But it is compiled and produced by the Electrical Training Section.

The Training Section is headquarters for the technical interpretation of blueprints when installation is involved, by common consent of the Electrical and Training Departments. It is customary for electricians and specialists to come to the Training Section when a problem of circuits or connections is to be cleared up.

When the blueprints for a new type of ship or an innovation or departure in wiring practice are initiated, they are gone over by the heads of the Electrical and Training Departments so there will be unity in instructions and understanding. Each time an electrician is transferred to work on another ship he comes to the Training Section and spends a day there going over blueprints with a member of the instructor staff. At that time he receives his Electrician's Ship Handbook for the ship in question. Every electrician, regardless of his period of service in the yard, spends 1 day in preparing for his new assignment in the manner described.

Close association between the actual work function and the training operation is of inestimable value in achieving efficient training results. Nonessentials are automatically discarded, and directness of action is instinctively uppermost.

PART II

Training "Shore" Electricians for Marine Requirements

As electrical activities in Yard A expanded, many so-called shore electricians joined Yard A's electrical force. Formerly these men were plant electricians or were on construction; many of them had been brought up in house wiring.

On taking up work in a shipyard, these men were faced with new conditions.

The wiring on ships is usually more complicated and very different from the installations to which most shore electricians are accustomed. Also, materials and methods of installation differ from those used generally on land. Moreover, marine conditions and the structural features of steel ships dictate rigid standards that must be observed consistently. In addition, the installation of heavy cables on ships involves special difficulties: Often much of the mechanical equipment has been placed in position before installation of the wiring can be begun.

Some shipyards put shore electricians to work immediately after they have been routed through the Personnel Department. In these yards the newcomer must shift largely for himself in acquiring a working knowledge of marine materials, installation standards, yard methods, ship locations, etc.

Yard A found that quick adaptative training stepped up the newcomer's early efficiency and workmanship in contrast to letting a man shift for himself. In fact, intensive planned training that will speedily adapt the new journeyman to his new work and surroundings is almost necessary in this yard. As previously noted, in Yard A the journeyman devotes practically all of his time to work that requires his best skill, such as laying out the circuits, "spotting" the locations for auxiliary equipment, installing control equipment, making "hook-ups," testing out, trouble shooting, supervising, instructing, etc.

Yard A prepares shore journeymen for their work on ships by intensive, planned training in the Electrical Training Section. Every electrical journeyman who joins Company A receives this training, which requires 48 hours. On rare occasions where the man's experience is exceptionally complete from a marine point of view, the 6-day period is shortened somewhat, but only after the evidence is clear that he already has much of the background required.

The content of the 48-hour training is the same as that of the 33- and 24-hour programs (described in Part I) combined, except for the fact that instruction is continuous and no intervening time is spent on the ship. The initial 3-hour introduction of pay-check routine, welfare privileges, safety, yard locations, ship terms, etc., is gone through in full. The contraction of the 57 total hours that beginners spend in the Training Section to the 48 scheduled is largely elimination of elementary material in the 33-hour schedule.

Emphasis is placed on what the individual shore journeyman needs most. Elementary information and practices are eliminated. A large part of the 6-day period is spent on circuits and hook-ups. There is less shop practice. The instructor is quick to perceive which manual skills the journeyman in training has already mastered.

On completion of the 48 hours in the Training Section, the somewhat "made over" electrician is assigned to work on a ship. Depending on the capacity shown in the Training Section and the run of work at the time, he is "teamed up" with a marine electrician who has a mature knowledge of how work is done in the yard. Or, if he appears qualified, he goes to work as a marine electrician. In any case, during the first few months he can always turn to an instructor-supervisor on the ship for help. Experience shows about 6 months is required to season a shore electrician to the point where he has the same all-around ability in marine practice as regulars in the electrical department.

The method of adapting shore electricians to work on ships, as developed by Yard A and described here, has been in effect for some time. Company A believes this form of training results in distinct economies for the company and benefits for the man. Greater flexibility in utilizing his services and less supervision being necessary also have been noted.

Figure 9—Partial view of quarters and facilities of the Electrical Training Section



The atmosphere of an electrical workshop pervades the Electrical Training Section. Situated alongside a pier in the heart of the yard's fitting-out section, it is readily accessible to the scene of work operations. Intimate association between actual work on the ships and the related training activities is of inestimable value in developing competent specialists in minimum time.

PART III
Electrical Safety Suggestions and Rules

Yard "A" Electrical Safety Suggestions

Observe all safety rules faithfully.
Take no chances on unsafe conditions.
Use the right tools and keep them in good condition.
When working overhead, make all material and tools secure.
Make sure of the condition of the circuit before you work on it.
Use the signs provided to warn others of danger.
Wear suitable clothing and safety equipment.
Check carefully the circuits, connections, and equipment before starting to operate a new installation.
Do not attempt to operate any equipment unless you are familiar with its operation. (Get instructions from supervisor.)
Have all injuries (however slight) attended to at the Clinic just as quickly as possible. (Make a report to the Electrical Office.)

DO NOT leave wire, hose, or anything else in passageways for one to trip over.
DO NOT leave cables hanging overhead that might strike somebody when passing.
DO NOT stand on boxes, barrels, or make-shift ladders that are not substantial.
DO NOT go into gas-filled spaces when there is any doubt as to safety.
DO NOT look at welding under any conditions.
DO NOT light a gasoline torch without suitable fire protection.

Yard "A" Electrical Safety Rules and Precautions

The following cover rules and precautions for the protection of wiremen and electricians. They must be observed by all men handling electrical circuits and apparatus in the interest of personal safety and avoiding damage to the ship and equipment.

Employees should cultivate the habit of being cautious, heed warning signs and signals, and always warn others who are seen in danger near live equipment or lines.

No employee should do work on or about live equipment or lines for which he is not properly qualified, except under the direct supervision of an experienced or properly qualified person.

If an employee is in doubt as to the proper performance of any work assigned, he should ask the foreman or other responsible person for instructions. DON'T TAKE CHANCES.

Workmen whose work incidentally brings them in the neighborhood of electrical supply equipment or lines, with the dangers of which they are not familiar, should proceed with their work only when authorized. They should be accompanied by a properly qualified and authorized person, whose instructions must be strictly obeyed.

When close to live equipment or lines, the employee should consider the effect each act will have, and do nothing which will endanger himself or others. The employee should be careful always to place himself in a safe position so as to avoid slipping, stumbling, or moving backward against live parts. The care exercised by others should not be relied on for protection.

Employees should wear suitable clothing while working on or about live equipment or lines. In particular, sleeves should be kept rolled down, and wearing unnecessary metal articles, cellu-

loid collars, celluloid or metal cap visors, or similar articles should be avoided. Loose clothing or shoes that slip easily on the floor should not be worn near live or moving parts.

Always use the safety devices provided to make the work less hazardous, but do not place entire reliance on them, for any safety device may get out of order and become ineffective. Therefore, make it a point first to examine such devices or tools to make sure they are suitable and in good condition.

Employees should not work in elevated positions unless protected from falling by approved safety belts or other adequate means.

Safety belts, whether owned by the company or by the individual workman, should be periodically inspected.

Suitable eye protectors should be worn by men working where an arc may be drawn, with resultant flash to the eyes.

Approved safety goggles should be worn to prevent injury to the eyes by flying particles when chiseling concrete, stone, or brick for the support of wiring devices or electrical apparatus.

Rubber gloves should be used only in special cases, and care must be taken to see that they are in good condition.

Rubber gloves should never be used without the protection of leather gloves over them.

Approved danger signs should be placed at all points where men may accidentally come in contact with live wires, and should also be placed at suitable places when men are working overhead to prevent passersby from injury from falling tools, etc. Danger signs should be removed when danger is passed.

When a cover is removed from a manhole, the hole must be properly guarded by railing, danger sign, or red flag. An additional man stationed at the opening is often advisable.

Imperfect or defective tools should not be used. The handles of the tools should be covered with rubber tape to prevent slipping and to reduce the possibility of short-circuiting across them. Such taping, however, should not be relied upon for protecting workmen from shock. Heads of cold chisels, center punches, etc., should be occasionally dressed and not allowed to become mushroomed. Avoid the use of measuring tapes made of metal or metal woven into the fabric, also brass-bound rules or steel scales.

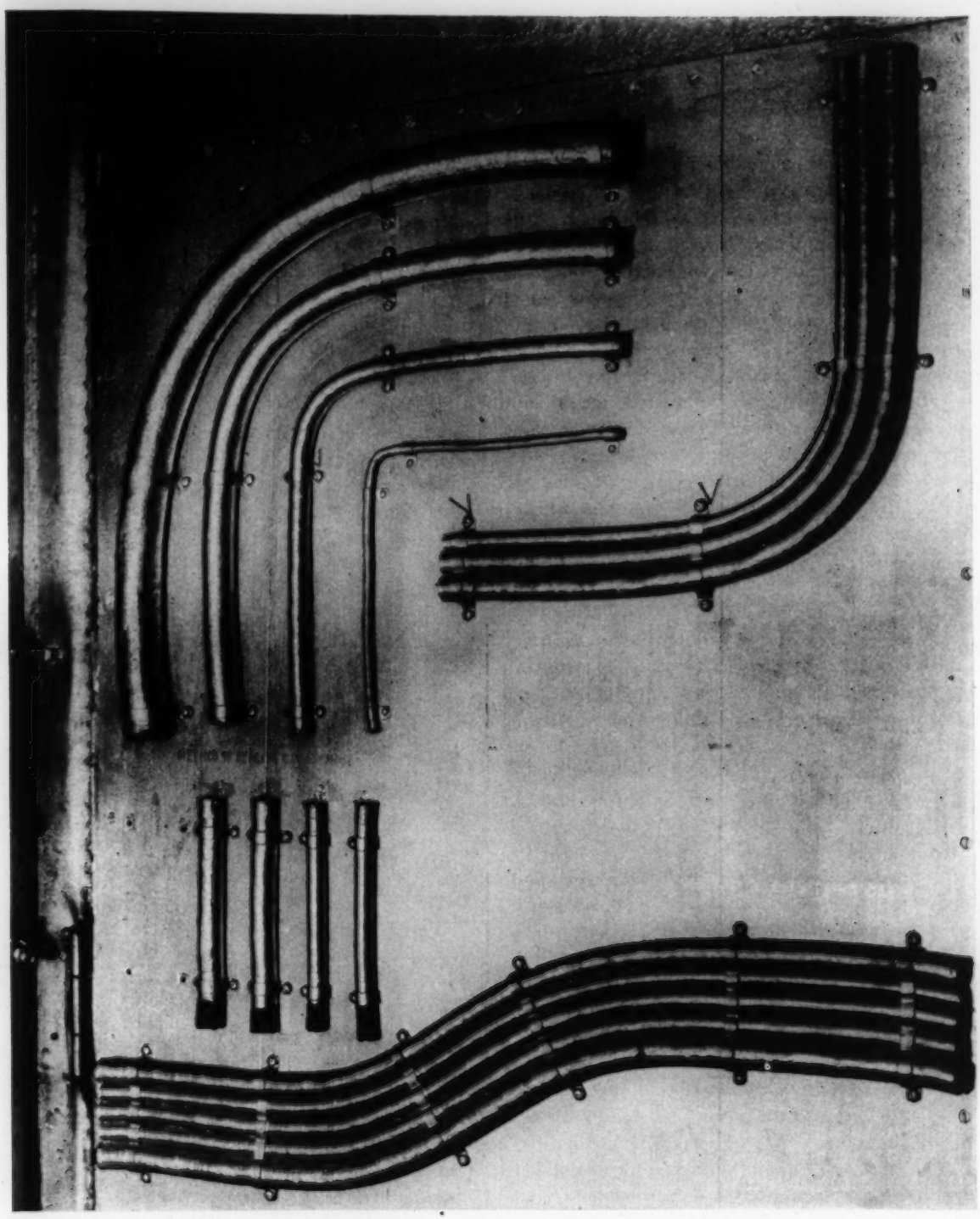
No repairs, alterations, or examinations that require the handling of live circuits above 750 volts should be made, except in case of urgent need and only under the personal supervision of the foreman. All voltages must be considered dangerous by beginners. Although the voltage may not be strong enough to produce a fatal shock, it may cause serious consequences by throwing workmen from ladders or other overhead positions. Except in emergencies, no employee should work along or near live circuits above 750 volts under wet conditions or at night.

Employees whose duties do not require them to approach or handle electrical equipment and lines should keep away from them.

Circuits should be "killed" whenever possible before work is begun. "Dead" circuits should be treated as if they were "alive." This procedure develops a cautious nature and may prevent an accident caused by another person's oversight.

Whenever circuits are opened for repairs, alterations, or examination, the control switch should be locked open; where the switch construction permits, it should be padlocked. Disconnecting switches should also be opened as an additional safeguard against accidental closing of the circuit. The workman responsible for having the circuit opened should place a tag on the controlling switch. The tag should bear his name and a notice that the switch should not be closed until the tag is removed. No person other than the workman who tagged the switch should be permitted to close the switch. Whenever it becomes necessary for the person who tagged the switch to leave before the job is completed (as may be the case in a long job) he should go to the switch accompanied by the man

Figure 10—Bends and offsets in cables



This display of permissible radii and offsets for cables of various types and sizes is used to impress beginners with limiting tolerances when making bends. The purpose of the four short cable samples at lower left is to demonstrate how cable ends should be sealed in order to keep moisture from entering the cable.

who is to assume the responsibility and remove the tag. His successor should then attach a similar tag on the switch.

Where it is not advisable or possible on account of conditions to tag open switches, the wires should be short-circuited and grounded between the source of power and the point where the work is being done. They should be kept in this condition until the work is completed.

As an additional safeguard, circuits carrying 750 volts or over should be short-circuited and grounded even when the rules previously stated are observed.

The insulation on a wire should not be depended on for protection from shock. While the insulation may look perfect, it may have deteriorated from age or exposure.

When tapping live insulated wires, insulation should be removed from only one wire at a time. A second wire should not be exposed until the first tap is made and the joint insulated.

All wiring must be done in accord with Underwriters' Rules, National Bureau of Standards, or local ordinances. Wires carelessly installed are dangerous and often are the cause of short-circuits and fires. Ends of wires should not be left exposed after cutting. If wires cannot be removed together, the ends should be well insulated.

Connections between wires must be well made, the wires bound and soldered, and the joint properly insulated. When wires are held in contact by means of screws, care should be taken to see that the screws are set down tight. A slight movement of the wire while setting down the screws will tend to make the joint tight.

Employees should assume that all circuits are grounded and insulate their bodies against all wires.

Frames of motors, switch boxes, transformers, etc., must be substantially grounded.

To avoid possible shock due to grounding when work is being done in damp places, extra precautions must be taken to insulate the body. This can generally be satisfactorily done by using a dry plank or board to stand on.

Switches should be opened wide and be kept that way when in the open position. They should be completely closed when in the closed position.

Switches should not be closed in a hesitating manner but firmly and positively, using sufficient force to make full contact of blades. A switch should not be closed without full knowledge of the condition of the circuit.

Do not allow oil cans, tools, dusters, or wiping clothes to catch on moving parts of machines. In passing any switchboard or machine in operation, do not touch it unnecessarily or allow metal tools or other metal objects to touch the apparatus or its connections. Do not use iron or tin oil cans near field magnets. Use only oilers, dusters, or wipers with insulated handles in or about commutators, switches, switchboards, or other electrical equipment.

Remember these "Do's" and "Don'ts"

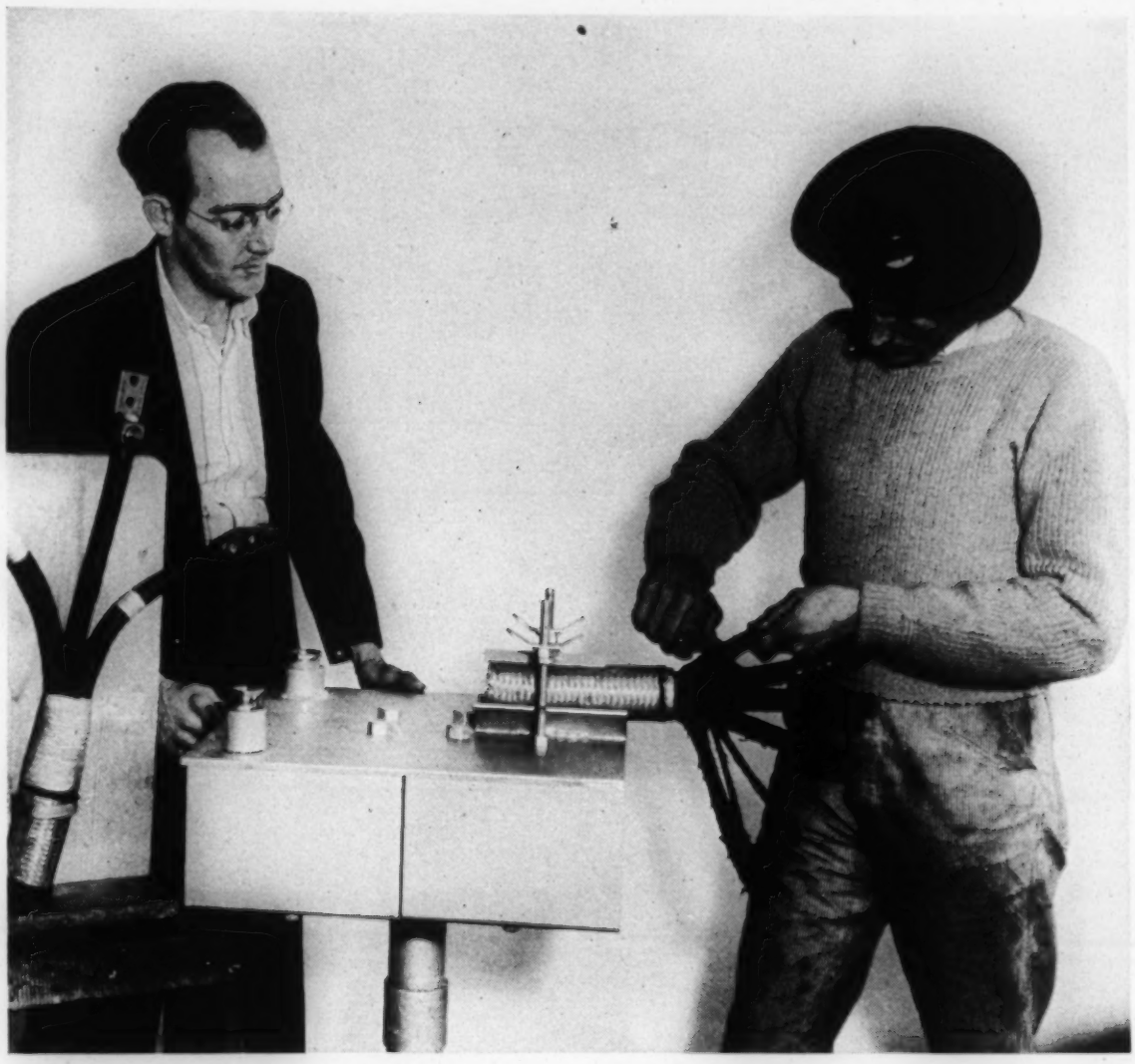
"Do's"

Wear a cap or hat.
Wear close-fitting clothing.
Wear non-slip shoes (preferably rubber heels and leather soles).
Use proper ladders and stools for working overhead.
Wear goggles when grinding and at any time when your eyes are in danger of flying particles.
Use proper precaution when working overhead to prevent tools from falling on other employees.
Open and tag all switches before working on circuit.
Take time to be safe.

"Don'ts"

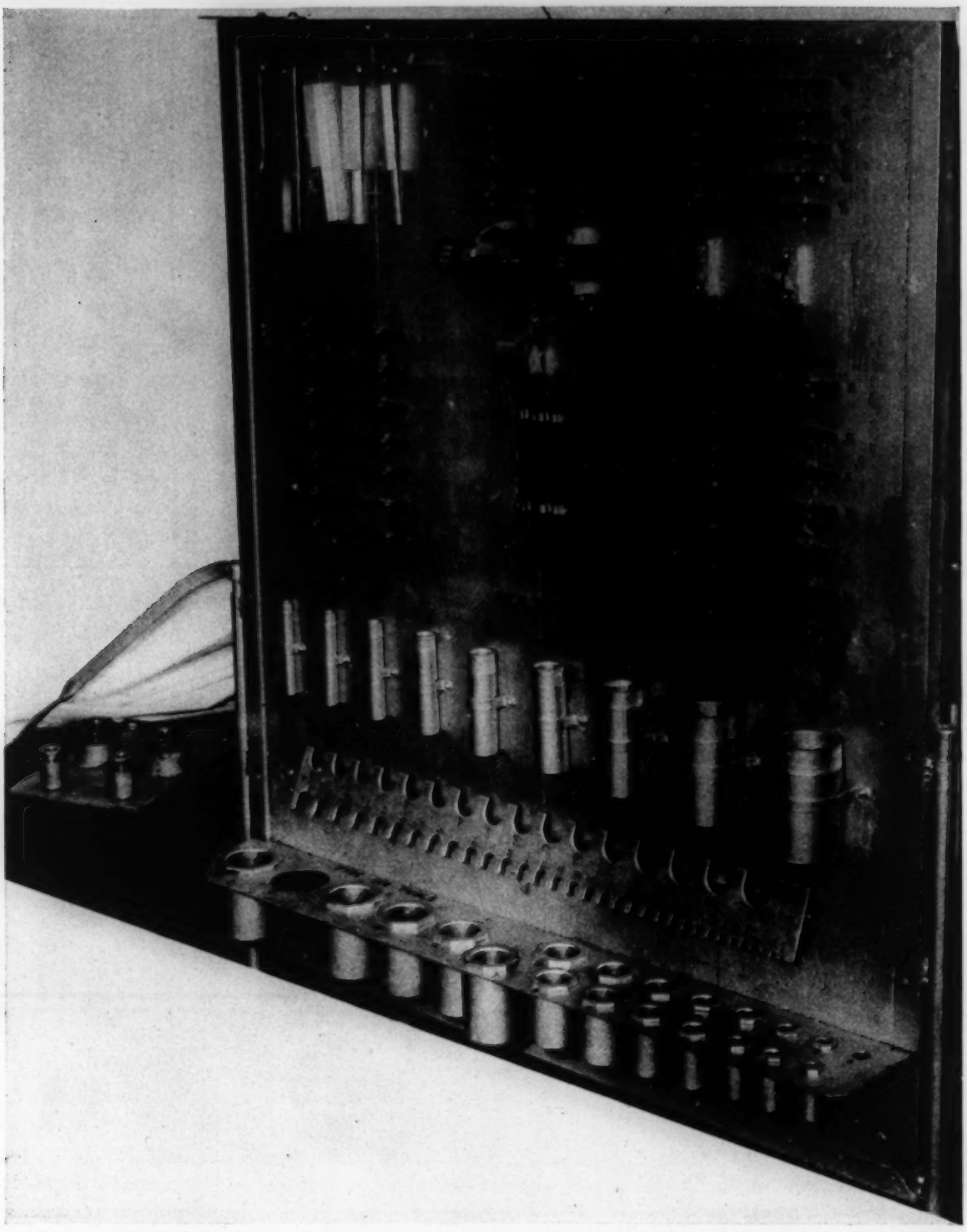
Do not wear cap or hat with celluloid brim.
Do not wear loose, flapping clothing.
Do not use boxes or buckets to stand on.
Do not walk under loads on cranes.
Do not run except in case of emergency.
Do not leave cable ends hanging down from overhead. They may hit someone in passing.
Do not go into compartments where an acytelene torch has been for some time.

Figure 11—Manipulative practice: cutting in a cable



Typical of manipulative training is picture shown above where the helper-in-the-making is cutting in a 3-conductor, 400,000-circular-mil cable, with the guidance of an instructor. A key point has just been indicated. At extreme end is example of completed cable end. Each conductor was fitted with a lug of different type for practice purposes.

Figure 12—Running cables through bulkheads and decks



Vital to building sound ships is the proper installation of cables and piping where they pass through bulkheads and decks. Structural strength must not be weakened, and watertight qualities must not be impaired. Damage to tanks, insulated walls, oil storage, refrigerated spaces must be avoided. The types of tubes and packing to meet these conditions are shown on the panel illustrated above and on another not shown here. Instruction and manipulative practice are provided. The latter is given on working sections such as the one at lower left of picture.

PART IV

Ship Terms and Their Definitions as Used in Shipyards

Compiled by Yard A

Access Hole.—Opening in any part of ship's plating used as a passageway while ship is under construction.

Accommodation Ladder.—A portable set of steps suspended over the ship's side for the accommodation of people boarding from small boats.

Aft.—Toward, at, or near the stern. (Adverb.)

After.—Toward, at, or near the stern. (Adjective.)

After Peak.—The compartment in the narrow part of the stern, aft of the last watertight bulkhead.

After Peak Bulkhead.—Watertight bulkhead farthest aft.

After Perpendicular.—A line perpendicular to the base line, intersecting the after edge of the stern post at the designed waterline.

Air Port.—A circular window with hinged glass, in the ship's side or deck house for light or ventilation; also called port hole.

Amidship.—In the vicinity of the middle portion of a ship, as distinguished from the ends.

Angle Clip.—A short piece of angle bar used for attachment.

Aperture.—The space provided between rudder post and propeller post for the propeller.

Assemble.—To collect and place in the proper positions before erection the various members or fabricated parts entering into construction.

Athwartships.—Across the ship, at right angles to the fore and aft centerline of a vessel.

Auxiliaries.—Various winches, pumps, motors, and other small engines required on a ship.

Backing Angle.—A short piece of angle for reinforcing the butt joint or splice of two angles, and placed back of the angles joined.

Ballast.—Any weight or weights (usually sea water) used to keep the ship from becoming "top heavy," or to increase its draft or trim.

Ballast Tank.—Water-tight compartment to hold water ballast.

Beam.—An athwartship horizontal member supporting a dock or flat. Also the extreme width of the ship.

Beam Knee.—End of steel deck beam that is split, having one portion turned down and a piece of plate fitted between the split portion, forming a bracket for riveted connection to side frame.

Below.—Below a deck or decks (corresponding to "down stairs").

Bending Rolls.—A machine in which power-driven steel rollers are used to give cylindrical curvature to plates.

Bending Slab.—Heavy cast-iron perforated slabs arranged to form a large floor on which frames, etc., are bent, after heating in a furnace.

Berth.—A place where a ship is docked or tied up; a place to sleep; a bunk.

Between Deck.—The space between any two continuous decks.

Bevel.—The angle between the flanges of a frame or other member. (When greater than a right angle, open bevel; when less, closed bevel.)

Bilge.—Curved section between the bottom and the side of a ship; the recess into which all water drains.

Bilge Keel.—A fin fitted on the bottom of a ship at the turn of the bilge to reduce rolling. It commonly consists of a plate running fore and aft and attached to the shell plating by angle bars. It materially helps in steadying a ship and does not add much to the resistance to propulsion.

Bilge Pump.—Pump for removing bilge water.

Bilge Strake.—Course of plates at the bilge.

Bilge Water.—Water in ship due to leaks, sweat, etc.

Binnacle.—A stand or box for holding and illuminating a compass so that it may be conveniently observed by the steersman.

Bitt.—Tie post for making lines fast on deck.

Bitumastic.—An elastic bituminous cement used in place of paint to protect steel.

Boat Deck.—Deck on which lifeboats are kept.

Boiler Chock.—Stay brace to prevent fore and aft movement of boilers; also called Ramming Chock.

Boiler Saddle.—Support for boilers.

Booby Hatch.—Water-tight covering over an opening on deck of a ship for a stairway or ladder.

Boom.—A long, round, heavy spar pivoted at one end, usually used for hoisting cargo, etc.

Bosom Piece.—A short piece of angle riveted inside a butt joint of two angles; butt strap for angle bars; splice piece.

Boss.—The curved swelling portion of the ship's hull around the propeller shaft.

Boss Frame.—Hull frame which is bent for clearing propeller shaft tube.

Boss Plate.—Shell spate covering curved portion of hull where propeller shaft passes outboard.

Bow.—The forward end of a ship.

Bracket.—A triangular plate used to connect rigidly two or more parts, such as deck beam to frame, frame to margin plate, etc.

Braze.—A flanged plate bracket joining port and starboard side stringers at their forward end.

Bridge.—Platform extending athwartships at pilot house, also an amidship superstructure.

Bridge Deck.—Deck at top of bridge superstructure.

Building Slip.—Place where the ship was built before launching.

Bulb Angle.—Angle shape reinforced at one toe.

Bulb Plate.—Narrow plate reinforced on one edge.

Bulb Tee.—Tee bar with toe of web reinforced.

Bulkhead.—A vertical steel partition corresponding to the wall of a room, extending either athwartship or fore and aft.

Bulwark.—The strake of shell plating above a weather deck. It helps to keep the deck dry and also serves as a guard against losing deck cargo or men overboard.

Bunker.—A compartment used for the stowage of coal or other fuel.

Buoyancy.—Ability to float. Upward force of water pressure.

Butt.—The joint formed when two parts are placed edge to edge; the end joint between two plates.

Butt Strap.—A strip or strap that overlaps both pieces serving as a connecting strap between the butted ends of plating.

Camber.—The rise or crown of a deck, athwartship.

Cant Frame.—A frame not square to the center line, usually at the counter of the vessel.

Capstan.—A revolving device with axis vertical, used for heaving in mooring lines.

Cargo.—The freight carried by a ship.

Cargo Batten.—Strip of wood used to keep cargo away from steel hull.

Cargo Boom.—Heavy boom used in loading cargo.

Cargo Hatch.—Large opening in a deck to permit loading of cargo into holds.

Cargo Port.—Opening in a ship's side for loading and unloading cargo.

Carling.—Fore and aft member at side of hatch, extending across ends of beams where cut to form hatch.

Casing.—Bulkheads enclosing portion of vessel, such as engine or boiler room casing. Also covering for parts of machinery such as engine cylinder casing.

Caulk or calk.—To make a joint watertight.

Center Line.—The fore and aft middle line of the ship, from stem to stern.

Chafing Plate.—Bent plate for minimizing chafing of ropes, as at hatches.

Chain Locker.—Compartment in forward lower portion of ship, in which anchor chain is stowed.

Chain Pipe.—Pipe for passage of chain from windlass to chain locker.

Chart House.—Small room adjacent to steering wheel for charts and navigational instruments.

Chock.—A heavy fitting through which ropes or hawsers may be led. Saddle or seat of wood or metal.

Chock Roller.—A fitting having two arms or horns around which ropes may be made fast. A clip on the frames of a ship to hold the cargo battens in place.

Figure 13—Electrician's Ship Handbook—Compiled individually for each type of ship

ELECTRICAL TRAINING DEPARTMENT
ELECTRICIAN'S HANDBOOK

FOR HULLS

NAME [redacted]

CHECK NO. [redacted]

THIS HANDBOOK IS TO BE USED ON HULLS ONLY. IT CONTAINS CONDENSED AND SIMPLIFIED DATA TAKEN FROM APPROVED PLANS & SPECIFICATIONS THAT GOVERN THE INSTALLATION OF ELECTRICAL EQUIPMENT ABOARD HULLS

THIS HANDBOOK HAS BEEN DRAWN UP FOR THE CONVENIENCE & GUIDANCE OF THE MEMBERS OF THE ELECTRICAL DEPT. ANY ALTERATIONS OR ADDITIONS THAT WILL INCREASE ITS USEFULNESS SHOULD BE DIRECTED TO THE ELECTRICAL TRAINING SECTION.

W.H.C.

COMPILED BY JAN. 7, 1941
TRACED BY
CHECKED BY

Combined cover and title page appear at left. Pocket-size, 3½ x 6 inches, the handbook comprises condensed and simplified data taken from the electrical blueprints for the type of ship to be wired. "Index" below is indicative of its contents.

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Coaming.—The vertical boundary of a hatch or skylight.

Cofferdam.—Narrow empty space between two oiltight bulkheads to prevent leakage of oil into adjacent compartments.

Collision Bulkhead.—First watertight bulkhead from bow of ship.

Companion Way.—An access hatchway in a deck, with a ladder leading below, generally for the crew's use.

Compass.—A device for indicating the magnetic north by means of a magnetized bar or needle, or the true north through the action of a gyroscope.

Compartment.—A subdivision of space or room in a ship.

Counter.—Overhang of stern of a ship.

Countersink.—A term applied to the operation of cutting the sides of a drilled or punched hole into the shape of a frustum of a cone. This shape provides a shoulder for a rivet or a bolt and allows a flush surface to be maintained, the usual slope being 60°.

Cowl.—Hood-shaped top of ventilator pipe.

Cradle.—A form on which furnaced plates are shaped. The support in which a ship lies during launching, called launching cradle.

Crow's Nest.—An elevated lookout station on a ship, usually attached to forward side of foremast.

Davit.—A crane arm for handling anchors, lifeboats, stores, etc.

Dead Flat.—The portion of a ship's form or structure which has the same transverse shape as the midship section.

Dead Rise.—Rise or slant-up athwartship of the bottom of a ship from the keel to the bilge.

Deadweight.—The total weight of cargo, fuel, water, stores, passengers and crew, and their effects that a ship can carry.

Deck.—The deck on a ship, corresponding to the floor in a building.

Deck Beam.—Athwartship support of deck.

Deck, Bulkhead.—The uppermost continuous deck to which all the main transverse watertight bulkheads are carried. This deck should be watertight in order to prevent any compartment that is open to the sea from flooding the one adjacent to it.

Deck House.—Shelter built on deck.

Deck, Main.—Usually the deck immediately below weather deck.

Deck, Orlop.—A partial deck in hold.

Deck, Shelter.—Full deck, lightly constructed, above regular weather deck, forming complete superstructure, nominally not closed in, but actually available for cargo.

Deck Stringer.—The strake of plating that runs along the outer edge of a deck.

Deck 'Tween.—The space between decks.

Deck, Weather.—Full deck with no overhead protection, watertight.

Derrick.—A device for hoisting heavy weights, cargo, etc.

Die.—A tool, having several cutting edges, used for cutting threads. In drop-forging work a template tool used to stamp out a piece of work in one operation.

Displacement.—The total weight of the ship when afloat, including everything on board, equals weight of water displaced. Displacement may be expressed either in cubic feet or long tons; a cubic foot of sea water weighs 64 pounds and one of fresh water 62.5 pounds, consequently one long ton is equal to 35 cubic feet of sea water or 35.9 cubic feet of fresh water. One long ton equals 2,240 pounds.

Docking Keel.—Keel on each side, and in plane of regular keel, used to distribute the weight in dry dock in the case of large ships. (Seldom used except on largest naval ships, and now practically obsolete.)

Dog.—A small bent metal fitting used to hold doors, hatch covers, manhole covers, etc., closed. A bent bar of round iron used for holding shapes on bending slab.

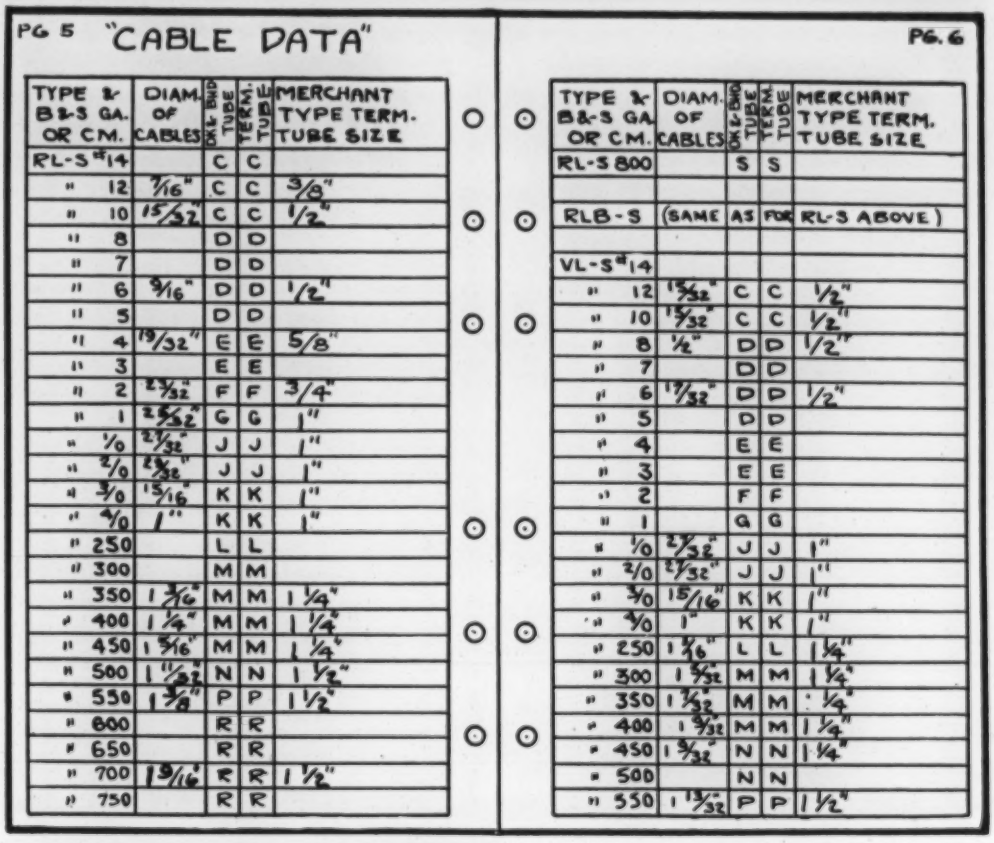
Double Bottom.—Compartments at bottom of ship between inner and outer bottoms, used for ballast tanks, water, fuel, oil, etc.

Doubling Plate.—A plate fitted outside or inside of and faying against another to give extra strength of stiffness.

Draft.—The vertical distance of the lowest point of the ship below the surface of the water when she is afloat.

Drift Pin.—A small tapered tool driven through rivet holes and used to draw adjoining plates or bars into alinement with each other.

Figure 14—Typical pages from Electrician's Ship Handbook—Cable and tube data



PG 5 "CABLE DATA"

TYPE & B&S GA. OR C.M.	DIAM. OF CABLES	BHD & DK TUBE	TERM. TUBE	MERCHANT TYPE TERM. TUBE SIZE
RL-S #14		C	C	
" 12	7/16"	C	C	3/8"
" 10	15/32"	C	C	1/2"
" 8		D	D	
" 7		D	D	
" 6	9/16"	D	D	1/2"
" 5		D	D	
" 4	19/32"	E	E	5/8"
" 3		E	E	
" 2	23/32"	F	F	3/4"
" 1	25/32"	G	G	1"
" 1/0	27/32"	J	J	1"
" 2/0	27/32"	J	J	1"
" 3/0	15/16"	K	K	1"
" 4/0	1"	K	K	1"
" 250		L	L	
" 300		M	M	
" 350	1 3/16"	M	M	1 1/4"
" 400	1 1/4"	M	M	1 1/4"
" 450	1 5/16"	M	M	1 1/4"
" 500	1 11/32"	N	N	1 1/2"
" 550	1 3/8"	P	P	1 1/2"
" 600		R	R	
" 650		R	R	
" 700	19/16"	R	R	1 1/2"
" 750		R	R	

PG. 6

TYPE & B&S GA. OR C.M.	DIAM. OF CABLES	BHD & DK TUBE	TERM. TUBE	MERCHANT TYPE TERM. TUBE SIZE
RL-S 800		S	S	
RLB-S	(SAME	AS	FOR	RL-S ABOVE)
VL-S #14				
" 12	15/32"	C	C	1/2"
" 10	15/32"	C	C	1/2"
" 8	1/2"	D	D	1/2"
" 7		D	D	
" 6	17/32"	D	D	1/2"
" 5		D	D	
" 4		E	E	
" 3		E	E	
" 2		F	F	
" 1		G	G	
" 1/0	27/32"	J	J	1"
" 2/0	27/32"	J	J	1"
" 3/0	15/16"	K	K	1"
" 4/0	1"	K	K	1"
" 250	1 1/16"	L	L	1 1/4"
" 300	1 5/32"	M	M	1 1/4"
" 350	1 3/32"	M	M	1 1/4"
" 400	1 3/32"	M	M	1 1/4"
" 450	1 5/32"	N	N	1 1/4"
" 500		N	N	
" 550	1 13/32"	P	P	1 1/2"

PG 40

ABBREVIATIONS OF TERMS IN GENERAL USE THRUOUT MARINE EL. WORK.

BHD.	BULKHEAD	INBD.	INBOARD
FR.	FRAME	LTS.	LIGHTS
DK.	DECK	OUTBD	OUTBOARD
PH.	PHASE	PORT	PORT
W.	WEB	REG.	REGULAR
PWR.	POWER	ALUM.	ALUMINUM
LTG.	LIGHTING	GALV.	GALVANIZE
TBL.	TELEPHONE	DWG.	DRAWING
10(#4)	CONDUCTOR	ELEV.	ELEVATION
5(PR)	PAIR	PLAT.	PLATFORM
FDR.	FEEDER	MACH.	MACHINE
AFT.	AFT	NAVIG.	NAVIGATION
AMID.	AMIDSHIP	SIG.	SIGNAL
CEIL.	CEILING	EMERG	EMERGENCY
FIXT.	FIXTURE	STBD	STARBOARD
FORD.	FORWARD	EL.	ELECTRICAL
COMPT.	COMPARTMENT.		
W.T.	WATER TIGHT.		
N.W.T.	NON-WATER TIGHT.		
A.T.	AIR TIGHT.		
O.T.	OIL " .		
S.T.	STUFFING TUBE.		
I.P.S.	IRON PIPE SIZE.		
FB	FEEDER GENERAL LIGHTING		
FB.	BATTLE.		
FE.	EMERGENCY		
℄	CENTER LINE.		
ARRGT.	ARRANGEMENT.		
IC.	INTERIOR COMMUNICATION.		
FC.	FIRE CONTROL.		
U.W.S.	UNDER WATER SOUND.		
T.T.	TERMINAL TUBE.		
REC.	RECEPTACLE.		
DEPT.	DEPARTMENT.		
SWBD.	SWITCHBOARD.		

The specimen pages reproduced above show the type of condensed data taken off the ship's electrical blueprints and of actual measurements taken from tables. The handbook is a working guide for electricians and specialists in performing the day's work. With this condensed data at hand, arranged in simple, understandable form, supervisory time is saved and work is expedited. All members of the electrical working force have been brought up to refer to these standards and measurements as routine in the day's work.

Drop Strake.—A strake that is terminated before it reaches the bow or stern. The number of strakes dropped depends on the reduction of girth between the midship section and the ends.

Dry Dock.—A dock in which a ship's hull may be kept out of water during construction or repair. Three types are used: 1. The graving dock, a basin excavated near a waterway, with a gate to exclude the water after pumping out; 2. The floating dock, a hollow structure of wood or steel, which is sunk to receive the ship to be docked and is pumped out to lift it from the water; 3. The marine railway, a cradle of wood or steel on which the ship may be hauled out of water along inclined tracks leading up the bank of a waterway.

Ensign Staff.—A flag staff at stern of vessel, from which the national ensign may be flown.

Erect.—To hoist into place and bolt up the various parts of a ship's hull, machinery, etc.

Even Keel.—A ship is said to be on an even keel when the keel is level or parallel to the surface of the water and the hull is not listed or tipped sideways.

Expansion Trunk.—Upper portion of tank on an oil tanker, used to allow for the expansion of oil when temperature rises.

Fabricate.—The processing of material prior to assembly or erection. In hull work it consists of shaping, punching, drilling, countersinking, scarfing, rabbeting, shearing, beveling, etc.

Fair or Fairing Up.—Correcting or fairing up a ship's lines on mold loft floor; assembling the parts of a ship so that they will be fair, that is, without kinks, bumps, or waves; bringing the rivet holes into alinement.

Fantail—Fan-shaped plate on center line of ship on overhanging stern. Plates forming overhang at stern.

Fathom.—A measure of length, equivalent to 6 linear feet.

Faying Surface.—The surface between two adjoining parts.

Fender.—Heavy strip of wood or steel attached to the side of the vessel, running fore and aft, above the water line, for the purpose of preventing rubbing or chafing of the hull.

Fidley Hatch.—Hatch around smokestack and uptake, for ventilation of boiler room.

Fixed Light.—Circular window with fixed glass in side of ship, door, skylight cover, etc.

Flag Staff.—A light spar or pole from which a flag may be displayed.

Flange.—Portion of a plate or shape at, or nearly at, right angles to main portion; to bend over to form an angle.

Floor.—A plate placed vertically in the double bottom of a ship, usually on every frame and running athwartship from bilge to bilge.

Floor Plate.—Vertical plate in floor (see floor).

Fore and Aft.—In line with the length of the ship, longitudinally.

Forecastle.—The forward upper portion of the hull, usually used for the crew's quarters.

Forefoot.—The part of the stem which curves aft to meet the keel.

Fore Peak.—A large compartment, or tank, at the bow in the lower part of the ship.

Forging.—A piece of metal, hammered, bent, or pressed to shape while red hot.

Forward.—Near, at, or toward the bow of the ship.

Forward Quarter.—Side of ship just aft of bow.

Foundations, Main.—Supports for boilers and engines.

Foundations, Auxiliary.—Supports for small machinery as winches, also condensers, heaters, etc.

Frame.—One of the ribs forming the skeleton of a ship.

Frame Spacing.—The fore and aft distance between heel and heel of adjacent transverse frames along the center line.

Frame, Web.—Heavy side or continuous frame, made with web plate between its members.

Funnel.—Smokestack of a vessel.

Furnace.—Heater or large forge for heating plates or shapes for bending. Also to bend by heating in furnace.

Galley.—A cook room or kitchen on a ship.

Galvanizing.—Coating metal parts with zinc for protection from rust.

Gangway.—A passageway, a ladder, or other means of boarding a ship.

Gasket.—Flexible material used to pack joints in machinery, piping, doors, hatches, etc., to prevent leakage of liquids or gases.

Cable Type Symbol	Cable Diameter	Bulkhead Tubes		Deck Tubes			
		Type and Size	Hole Size	Type and Size	Pipe Size	Hole Size	Pipe Length for Deck ½ inch Thick
SHFA–9							
DHFA–14							
THFA–400							
MHFA–44							
DHFA–200							
FHFA–3							
SHFA–23							
WHFA–10							
TT–20							
TT–30							

Figure 15—Typical test problem to determine beginner's understanding of Electrician's Ship Handbook

In the day's work, electrical employees refer frequently to the Handbook for guidance regarding locations and sizes of openings to be made, and the specific types of wiring fittings to be used. Above is a typical problem designed to develop and test their skill in determining the measurements and fittings.

Girder.—A continuous beam running in a fore and aft direction under the deck for the purpose of supporting the decks and binding the deck beams together.

Girth.—Distance around a vessel's frame from gunwale to gunwale.

Grating.—A structure built out of wooden strips or metal bars, to form a walkway above a deck or opening, without interference with light, drainage, or ventilation.

Gross Tonnage.—A figure obtained by dividing the total volume of the ship, in cubic feet, by 100, after the omission of all spaces exempted from measurement, by law.

Ground Ways.—Timbers fixed to the ground, under the hull on each side of the keel, on which ship slides during launching.

Gudgeons.—Bosses on stern post drilled for pins (pintles) for rudder to swing on.

Gunwale.—Junction of deck and shell at top of sheer strake.

Gunwale Bar.—Angle bar which connects deck stringer plate and shell plates at weather deck.

Gusset Plate.—Triangular plate which connects members or braces.

Hatch.—Opening in deck for passage of cargo, etc.

Hatch Beam.—Portable beam across the hatch to support covers; also strong beam at ends of hatch.

Hawse Pipe.—Casting extending through deck and side of ship for passage of anchor chain, and for stowage of anchor in most cases.

Heeling.—Tipping of a vessel to one side.

Helm.—A term used to designate the rudder's position as controlled by the tiller, wheel, or steering gear. To "port the helm" means to put the tiller to port, the vessel's head and the rudder both turning the opposite way, or to starboard.

Hogging.—Straining of the ship that tends to make the bow and stern lower than the middle portion.

Hold.—The spaces below deck allotted for the stowage of cargo.

Hold Beams.—Beams in a hold, similar to deck beams, but having no plating or planking on them.

Horseshoe Plate.—Small horseshoe-shaped plate around rudder stock on shell of ship, for the purpose of preventing water backing up into the rudder trunk.

Hull.—The body of a ship, including shell plating, framing, decks, bulkheads, etc.

Inboard.—Inside the ship, toward the center line.

Inner Bottom.—Plating forming the upper boundary of the double bottom. Also called tank top.

Intercostal.—Made in separate parts, between frames, beams, etc., the opposite of continuous.

Jack Staff.—A flag pole at bow of vessel, from which the union jack may be displayed.

Joggle.—To offset a plate or shape to save the use of liners.

Keel.—The principal fore and aft member of a ship's frame, running along the bottom connecting the stem and stern and to which is attached the frames of the ship. The backbone of the ship's frame.

Keel, Bar.—A keel which protrudes through the bottom.

Keel Blocks.—Heavy blocks on which ship rests during construction.

Keel, Flat.—A fore and aft row of flat plates end to end on the center line running along the bottom of the ship from stem to stern, the forward and after plates being dished up into a "U" shape to fit the stem and stern castings.

Keelson, Side.—Fore and aft member placed on each side of, and similar to, the center vertical keel.

Keel, Vertical.—Vertical plate on center line, used as reinforcement for longitudinal flat keel, sometimes called center keelson.

King Post.—A stub mast, outboard from center line, to carry cargo booms; also called Samson post.

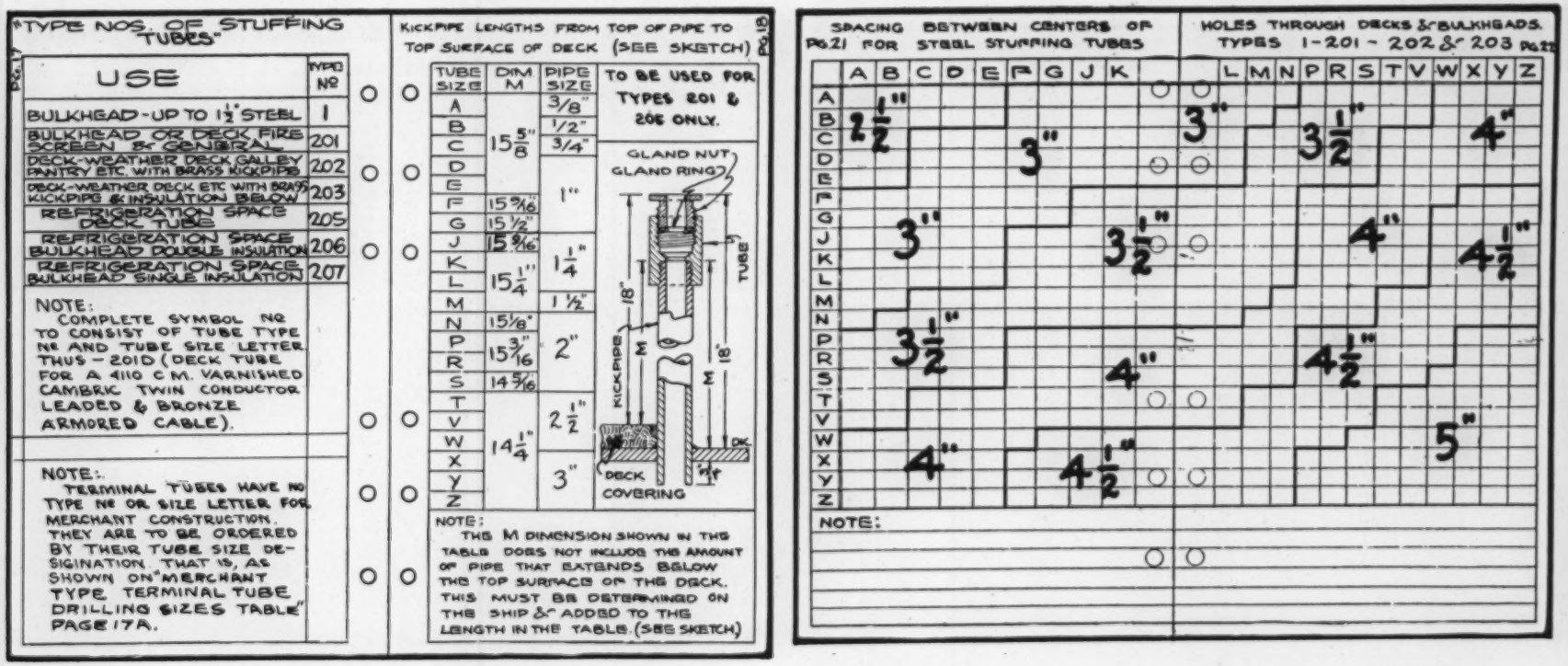
Knot.—A speed measurement of one nautical mile per hour, a nautical mile being about one and one-seventh land miles, or 6,080 feet.

Knuckle.—A sharp bend in a plate or shape.

Knuckle Plate.—A plate bent to form a knuckle.

Ladder.—Inclined steps aboard ship taking the place of "stairs."

Lap.—A joint in which one part overlaps the other, thus avoiding the use of a butt strap.



With the guidance afforded by the standard measurements and instructions given on the pages above and others of a similar nature (and training in their application to various conditions), helpers and handymen work competently with a minimum of supervision. Consistently good workmanship is indispensable when installing stuffing tubes.

Figure 16—Pages from Electrician's Ship Handbook—Typical stuffing tube data

Launching.—The operation of placing the hull in the water by allowing it to slide down the launching ways. During launching the weight of the hull is borne by the cradle and sliding ways, which are temporarily attached to the hull and slide with it down the ground ways.

Laying Off.—Marking plates, shapes, etc., for sheering, punching, etc.

Length Between Perpendiculars.—The length of a ship measured from the forward to the after perpendicular.

Length Over All.—The length of a ship measured from the forwardmost point of the stem to the aftermost point of the stern.

Lift.—To lift a template is to make it from measurements taken from the job.

Lightening Hole.—A large hole cut in a floor plate, side keelson, etc., to reduce its weight.

Limber Hole.—A hole of a few inches diameter cut in a floor plate to allow water to drain through it near the bottom.

Liner.—A flat or tapered strip placed under a plate or shape, to bring it in line with another part that it overlaps. A filler.

Lines.—The plans of a ship that show its form.

Listing.—Same as heeling.

Load Water Line.—Line of surface of water on a ship when loaded to maximum allowance in salt water in the summer time.

Longitudinal.—A fore and aft structural member running parallel or nearly parallel to the center vertical keel, along the inner bottom, shell, or deck.

Main Deck.—The principal deck, usually the deck immediately below the shelter or weather deck.

Man Hole.—A round or oval shaped hole cut in a bulkhead, tank top, etc., large enough for a man to pass through.

Manifold.—A box casting containing several valves, to which pipe lines are led from various compartments and pumps on a ship, so as to allow any tank to be connected to one or more pumps.

Margin Angle.—Angle bar connecting margin plate to shell.

Margin Bracket.—A bracket connecting the frame to the margin plates.

Margin Plate.—The outer row of plates of the inner bottom, connecting to the shell plating at the bilge.

Mast.—A large long spar, placed nearly vertical on the center line of a ship.

Mess Room.—Dining room for crew.

Midship.—Center of ship located at the midpoint between the forward and after perpendiculars.

Midship Section.—A plan showing a cross section of the ship through the middle or amidship. This plan shows sizes of frames, beams, brackets, etc., and thicknesses of plating.

Mold Loft.—Usually the second floor of a building with a large smooth floor for laying down the lines of a vessel to actual size and making templates therefrom for the structural work entering into a hull.

Mooring.—Securing a ship in position by several lines or cables so that she cannot move or swing.

Mooring Ring.—A round or oval casting inserted in the bulwark plating of a ship, through which the mooring lines or hawsers are passed.

Mold.—A light pattern of a part of a ship. Usually made of thin wood or paper. Also called a template.

Net tonnage.—A figure obtained by making deduction from the gross tonnage for space not available for carrying cargo or passengers.

Oiltight.—Riveted, caulked, or welded to prevent oil leakage.

Outboard.—Away from the center line, toward the side of a ship.

Overboard.—Outside, over the side of a ship, in the water.

Overhang.—Portion of the hull over and unsupported by the water.

Oxter Plate.—Bent shell plates which fit around upper part of stern post; also called tuck plate.

Packing.—Material put between plates or shapes to make them watertight. Wooden blocks and wedges supporting ship on sliding ways.

Panting.—The in-and-out vibrations of the frames and shell plating due to variation of wave pressure. Most noticeable in the bow and stern.

Peak.—The space at the extreme lower bow or stern.

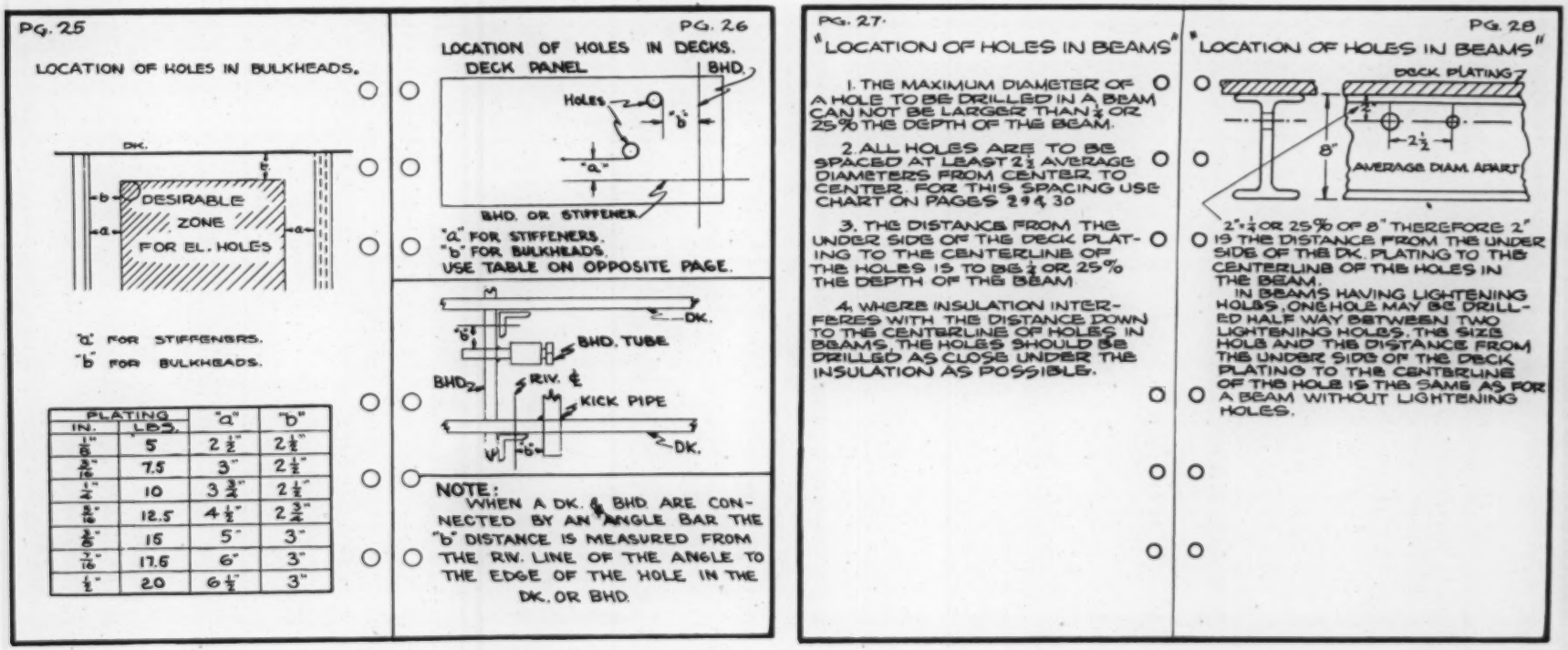


Figure 17—Pages from Electrician's Ship Handbook—Permissible locations for holes

No less than 12 pages of the handbook are devoted to the location of holes for cable in accord with ship specifications. With guidance provided in this fashion, accompanied by suitable training, it is readily feasible for beginners and semiskilled specialists to consistently observe Yard A's high standards.

Pillar.—Vertical member or column giving support to a deck girder. Also called stanchion.

Pilot House.—Deck house containing steering wheel, compass, charts, etc., used for navigation of ship, and generally placed forward, near navigating bridge.

Pintles.—The pins or bolts which hinge the rudder to the gudgeons on the stern post.

Planking.—Wood covering for decks, etc.

Platen.—Skids on which structural parts are assembled.

Platform.—A flat partial deck, without camber or sheer.

Plating.—The plates of a hull, a deck, a bulkhead, etc.

Plimsoll Mark.—A mark stenciled in and painted on the side of a vessel designating the depth to which the ship may be loaded.

Poop.—The after, upper portion of the hull, usually containing the steering gear.

Port.—The left-hand side of a ship (looking toward the bow). Also an opening in the side of a ship for loading cargo, etc.

Port, Freeing.—A rectangular or oval opening in the bulwark just above the deck, so that, when seas break over the deck, the ship can clear itself of the sea water quickly. Rods or bars are generally fitted across them to prevent men being washed overboard through these openings.

Porthole.—A circular opening in the ship's side (see Air Port).

Profile.—Side elevation or fore and aft center line section of a ship's form or structure.

Propeller.—A revolving device that drives the ship through the water, consisting of three or four blades, resembling in shape those of an electric fan. Sometimes called a screw or wheel.

Propeller Post.—Forward post of stern frame, through which propeller shaft passes.

Quadrant.—A casting, forging, or built-up frame, on the rudder head, to which the steering chains are attached.

Quarter Deck.—That portion of the weather deck nearest the stern.

Quarters.—Living or sleeping rooms.

Rabbet.—A depression or offset of parallel depth designed to take some other adjoining part; as, for example, the rabbet in the stem to take the shell plating.

Rail.—The rounded section at the upper edge of the bulwarks, or a horizontal pipe forming part of a railing fitted instead of a bulwark.

Reaming.—Enlarging a rivet hole by means of a revolving, cylindrical, slightly tapered tool with cutting edges running along its sides.

Reverse Frame.—An angle bar or other shape riveted to the inner edge of a transverse frame to reinforce it.

Ribband.—A fore and aft wooden strip or heavy batten used to support the transverse frames temporarily after erection, and to keep them in a fair line; also used to mean any similar batten for fairing a ship's structure.

Rigging.—Ropes, wire ropes, lashings, etc., used to support masts, spars, booms, etc., also for the handling and placing on board the ship of its cargo.

Rivet.—A short round metal connection used to fasten two or more members together by clinching after heating red hot.

Rose Box.—A galvanized iron box with the sides perforated by small holes, the combined area of which equals at least twice the area of the bilge suction pipe. The object is to collect bilge water for pumping out and to prevent refuse from clogging the pumps.

Rough Bolt.—To bolt a plate or frame to ship until it can be faired for reaming.

Rudder.—A large heavy fitting hinged to the stern frame, and used for steering the ship.

Rudder Lug.—A projection cast or fitted to the forward edge of the rudder frame for the purpose of taking the pintles.

Rudder Post.—After post of stern frame to which rudder is hung. Also called stern post.

Rudder Stock.—Shaft of rudder which extends through counter of ship above main part of rudder.

Rudder Stop.—Lug on stern frame or a stanchion at each side of quadrant, to limit the swing of the rudder.

Sagging.—Straining of the ship that tends to make the middle portion lower than the bow and stern.

Samson Post.—A heavy vertical post that supports cargo booms, also called king post.

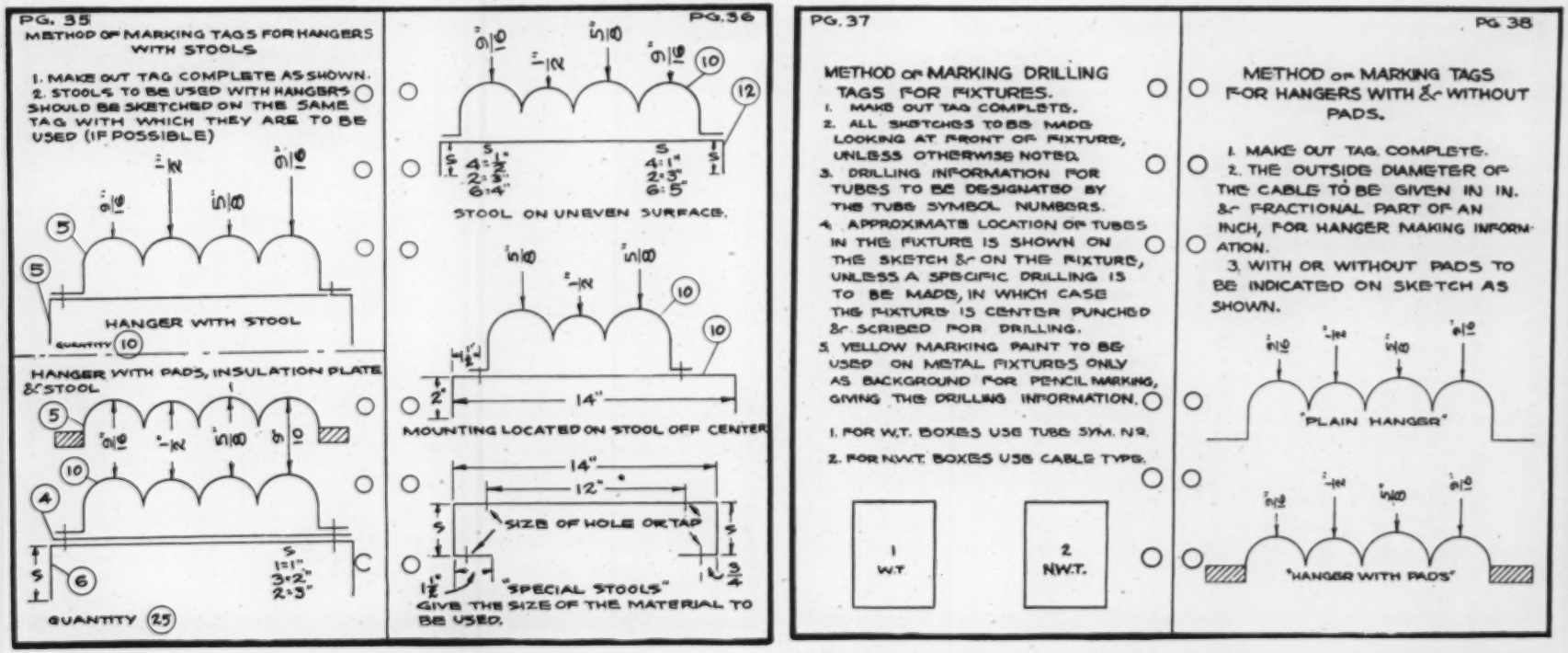


Figure 18—Pages from Electrician's Ship Handbook—Instructions for the shop

In Yard A, cable hangers are made in the electrical shop to measurements and sketches which have been prepared by helpers and handymen. Definite routines for this purpose have been set up. Everyone in the Electrical Department has been trained in them. The same is true of drilling distribution boxes and other fixtures.

Scantlings.—The dimensions of the frames, girders, plating, etc., that go into a ship's structure.

Scarf.—A connection made between two pieces by tapering their ends so that they will mortise together in a joint of the same breadth and depth as the pieces connected. It is used on bar keels, stem and stern frames, and other parts.

Screen Bulk Head.—A bulkhead, dusttight but not watertight, usually placed between engine and boiler rooms.

Scupper.—Drains from weather decks to carry off accumulations of sea and rain water.

Scupper Pipe.—Pipe which drains water from scuppers through side of a ship.

Scuttle.—A small opening, usually circular in shape, and generally fitted in decks to provide access or as a manhole or opening for stowing fuel, water, and small stores.

Sea Chest.—A casting fitted to shell of a vessel for the purpose of supplying water from the sea to the condenser and pumps.

Seam.—Fore and aft joint of shell plating, deck and tank top plating, or lengthwise side joint of any plating.

Seam Strap.—Strap connecting plates to form a flush seam.

Shaft.—Long, round, heavy forging connecting engine and propeller.

Shaft Alley or Shaft Tunnel.—A watertight casing covering propeller shaft, large enough to walk in, extending from engine room to after peak bulkhead, to provide access and protection to shaft in way of after cargo holds.

Shape.—Bar of constant cross section throughout its entire length, such as a channel, T-Bar, angle bar, etc.

Shear Line.—Line to shear or cut to.

Shears.—Large machine for cutting plates and shapes.

Sheer.—Fore and aft curvature of a deck.

Sheer Plan.—Side elevation of ship's form, a profile.

Sheer Strake.—Top full course of shell plates at strength deck level.

Shell Expansion.—A plan showing details of all plates of the shell.

Shell Landings.—Points on the frames showing where the edges of shell plates come.

Shell Plating.—The plates forming the outer skin of the hull.

Shelter Deck.—(See Deck, Shelter.)

Shore.—A brace or prop.

Skids.—Timbers on which structural parts are assembled.

Skylight.—An opening in a deck to give light and air to the compartment below it, usually fitted with hinged covers having fixed lights in them.

Sliding Ways.—(See launching.)

Slop Chute.—Chute for dumping garbage overboard.

Smoke Stack.—A metal chimney or passage through which the smoke and gases are led from the boiler uptakes to the open air.

Sounding Pipe.—Pipe in oil or water tank used to measure depth of liquid in tank.

Spar.—A long, round, wooden timber used to carry rigging.

Spar Deck.—Upper deck.

Split Frame.—A channel or "Z" bar frame split at the bilge so that one flange may connect to the shell plating and the other to the tank top.

Stability.—Tendency of a ship to remain upright.

Stanchion.—A pillar or upright post, vertical rail posts.

Staple Angle.—A piece of angle bent in the shape of a staple or other irregular shape.

Stapling.—Collars, forged of angle bars, to fit around continuous members passing through bulkheads, for watertightness.

Starboard.—Right side of a ship looking forward.

Stay.—A guy line.

Stealer.—A plate extending into an adjoining strake in the case of a drop strake. Stealer plates are located in the bow and stern, where the narrowing girth compels a reduction in the number of strakes.

Steering Gear.—Apparatus for controlling the rudder.

Steering Wheel.—Wooden or metal wheel having its spokes extended through the rim, for hand holds, and used to control rudder by rope leads or through steering engine.

Stem.—Forging or casting forming extreme bow of ship, extending from keel to forecastle deck.

Stem Cap.—A small plate on top of stem post.

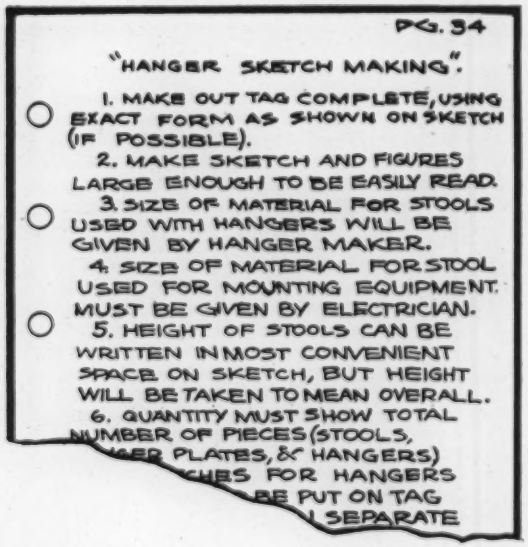
Typical Problem

Make out a cable hanger tag for the following cables

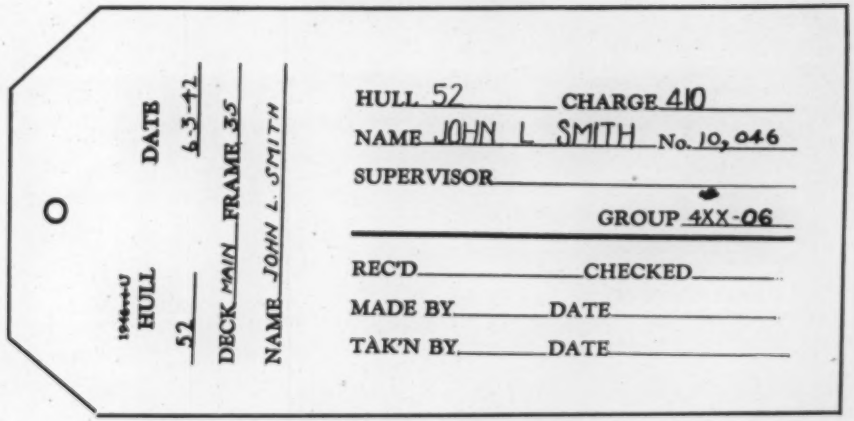
DHFA–4	5 Hangers on pads.
FDHA–3	4 Hangers on insulation bar.
SHFA–9	1 Hanger on 1-inch stool.
THFA–4	3 Hangers on 2-inch stool.
	2 Hangers on 3-inch stool.

See page 35 of Handbook

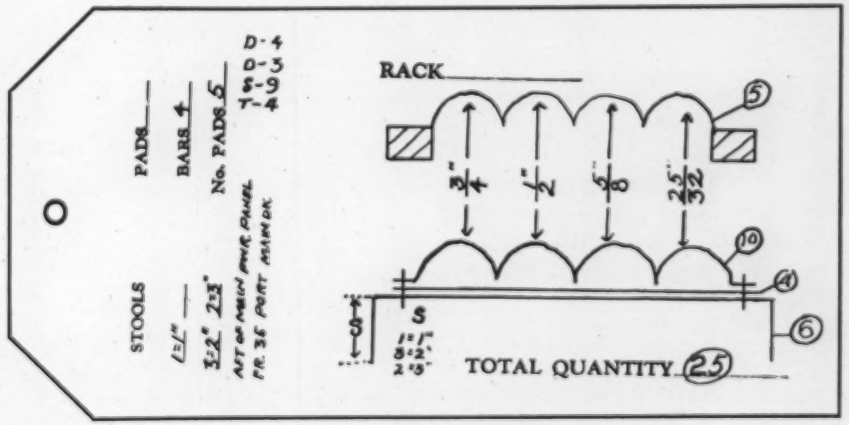
Reference in Handbook



Solution of Problem



Instructions—front of tag.



Sketch—back of tag.

Figure 19—One of several problems designed to train in departmental routine

Yard A's success in getting early production from inexperienced men is partly due to the practice of dividing work operations into distinct steps, and assigning them to specialists who have the grades of skill needed. This definiteness extends to simple routines, such as ordering hangers for cables. It is official and everyone is trained in it. At left, typical problem designed to familiarize with method. At right, correct solution as worked out by a beginner.

Step.—To set in place, as applied to a mast.

Stern.—After end of a ship.

Stern Frame.—Large casting or forging attached to after end of keel to form ship's stern. Includes rudder post, propeller post, and aperture for propeller.

Stern Post.—After part of stern frame to which rudder is attached; also called rudder post.

Stern Tube.—Tube through stern through which propeller shaft passes.

Stiffener.—An angle bar, T-bar, channel, etc., used to stiffen plating of a bulkhead, etc.

Stop Water.—Canvas soaked in red lead or other material fitted between two metal parts to make a watertight joint.

Storm Valve.—A check valve in a pipe opening above waterline on a ship.

Stow.—Put away.

Stowage.—Everything for support and fastening of articles to be stowed, as anchor or boat stowage.

Strake.—A course or row of shell or other plating.

Stringer.—A fore and aft member used to give longitudinal strength to shell plating. According to location they are called hold stringers, bilge stringers, side stringers, etc.

Stringer Plate.—Deck plate at outboard edge of deck, connected to the shell of a ship with an angle, also web of side stringers.

Strong Back.—Portable supporting girders for hatch covers; a rig used in straightening bent plates; a bar for locking cargo ports.

Strum Box.—The enlarged terminal on the suction end of a pipe and forming a strainer which prevents the entrance of material liable to choke the pipe.

Strut.—Outboard support for propeller tail shaft, used on ships with more than one propeller.

Superstructure.—Deck houses, etc., above shelter deck.

Swash Plate.—Baffle plate in tank to prevent excessive swashing.

Tail Shaft.—Short section of propeller shaft extending through stern tube and carrying propeller.

Tank.—Compartment for liquid or gas, either built into ship's structure or independent of it and supported by an auxiliary foundation.

Tank Top.—The inner bottom.

Template.—A mold or pattern made to the exact size of a piece of work that is to be laid out or formed and on which such information as the position of rivet holes, size of laps, etc., is indicated. Common types are made out of paper or thin boards.

Thrust Bearing.—Bearing on propeller line shaft which relieves the engine from the driving force of the propeller and transfers it to the structure of the ship.

Tie Plank.—The fastening holding the ship from sliding down the ways; also called sole piece.

Tie Plate.—A single fore and aft course of plating attached to deck beams under wood deck to give extra strength.

Tiller.—Arm attached to rudder head for operating rudder.

Transom.—The aftermost transverse frame.

Transverse.—Athwartship, at right angles to the keel.

Transverse Frames.—Athwartship members forming the ship's "ribs."

Trim.—To shift ballast to make a ship change its position in the water; as a noun, it is the excess of draft forward or aft.

Trunk.—Steel casing passing through deck such as is used for ladders or cargo hatches.

Tumble Home.—Slant inboard of a ship's side above the bilge.

'Tween Deck.—The space between any two continuous decks.

Uptake.—A sheet metal conduit connecting the boiler smoke box with the base of the smoke stack. It conveys the smoke and hot gases from the boiler to the stack.

Ventilator.—A device for furnishing fresh air to compartments below decks.

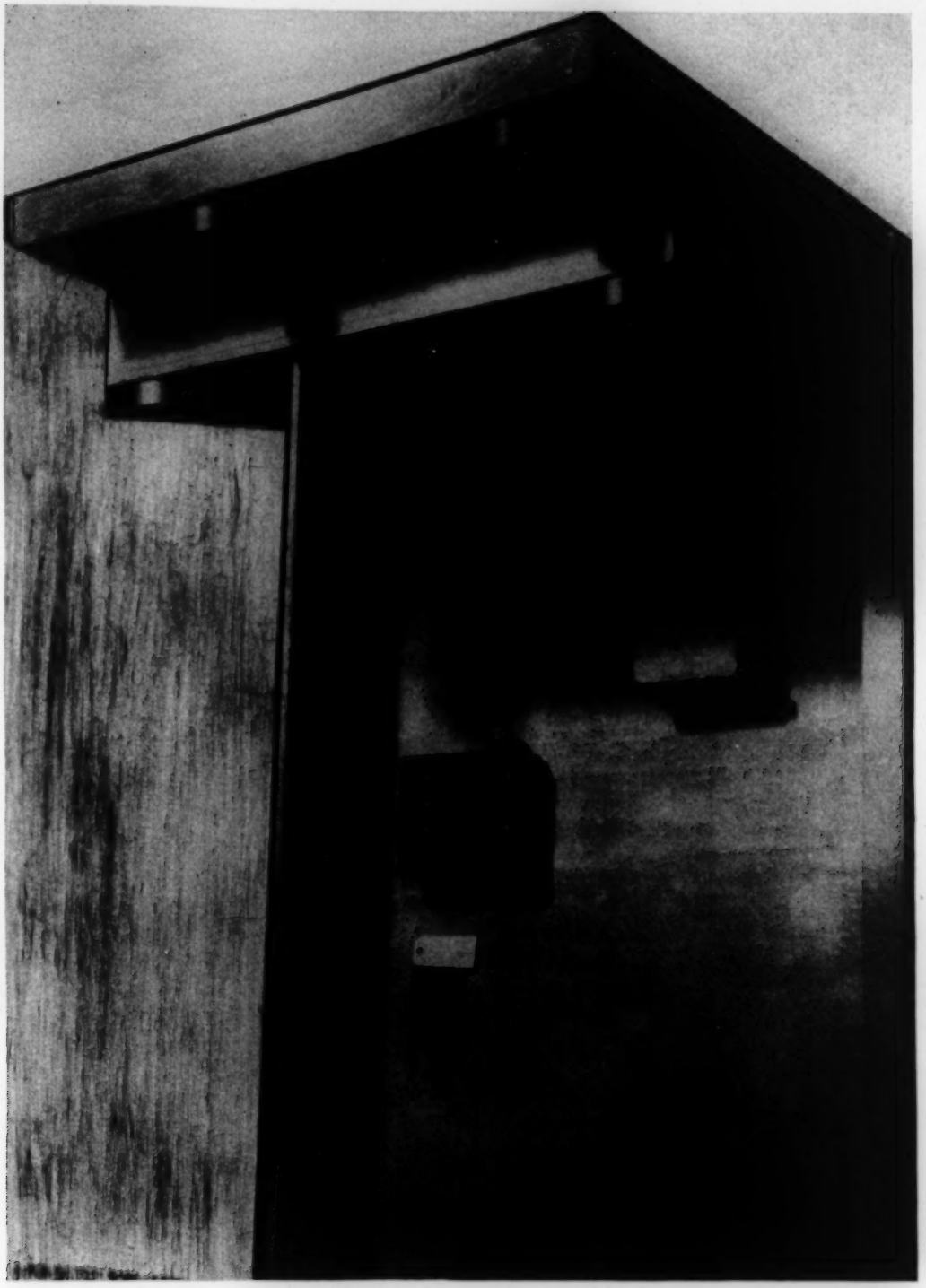
Vertical Keel.—Row of vertical plates extending along center of flat-plate keel. Sometimes called center keelson.

Voice Tube.—Large speaking tube.

Warping Bridge.—Bridge at after end of hull used while docking a ship; also called docking bridge.

Water Line.—The line of the water's edge when the ship is afloat; technically the intersection of any horizontal plane with the molded form of the ship.

Figure 20—Practice in laying out circuits



Competent "handymen" before being upgraded to the next rank, that of "mechanic," in the electrical specialist group, return to the Electrical Training Section for advanced training in blueprint reading and laying out circuits. Demonstration and practice are carried out with the aid of the practice panel illustrated above.

Watertight.—So constructed as to prevent the passage of water.

Watertight Flat.—Short section of watertight deck, forming a step in a bulkhead or the top of a watertight compartment or water tank.

Waterway.—A narrow passage along the edge of the deck for the drainage of the deck. A gutter.

Ways.—Timbers, etc., on which a ship is built or launched.

Weather Deck.—Full watertight deck with no overhead protection, exposed to the weather.

Web.—The vertical portion of a beam, the athwartship portion of a frame, etc.

Web Frame.—A built-up member consisting of a web plate to the edges of which single or double bars are attached.

Welding.—Making a joint of two metal parts by fusing the metal in between them or by forging together at welding heat.

Well.—Space in bottom of a ship to which bilge water runs that it may be pumped out.

Wheel.—Nickname for propeller; steering gear control.

Winch.—A small hoisting engine.

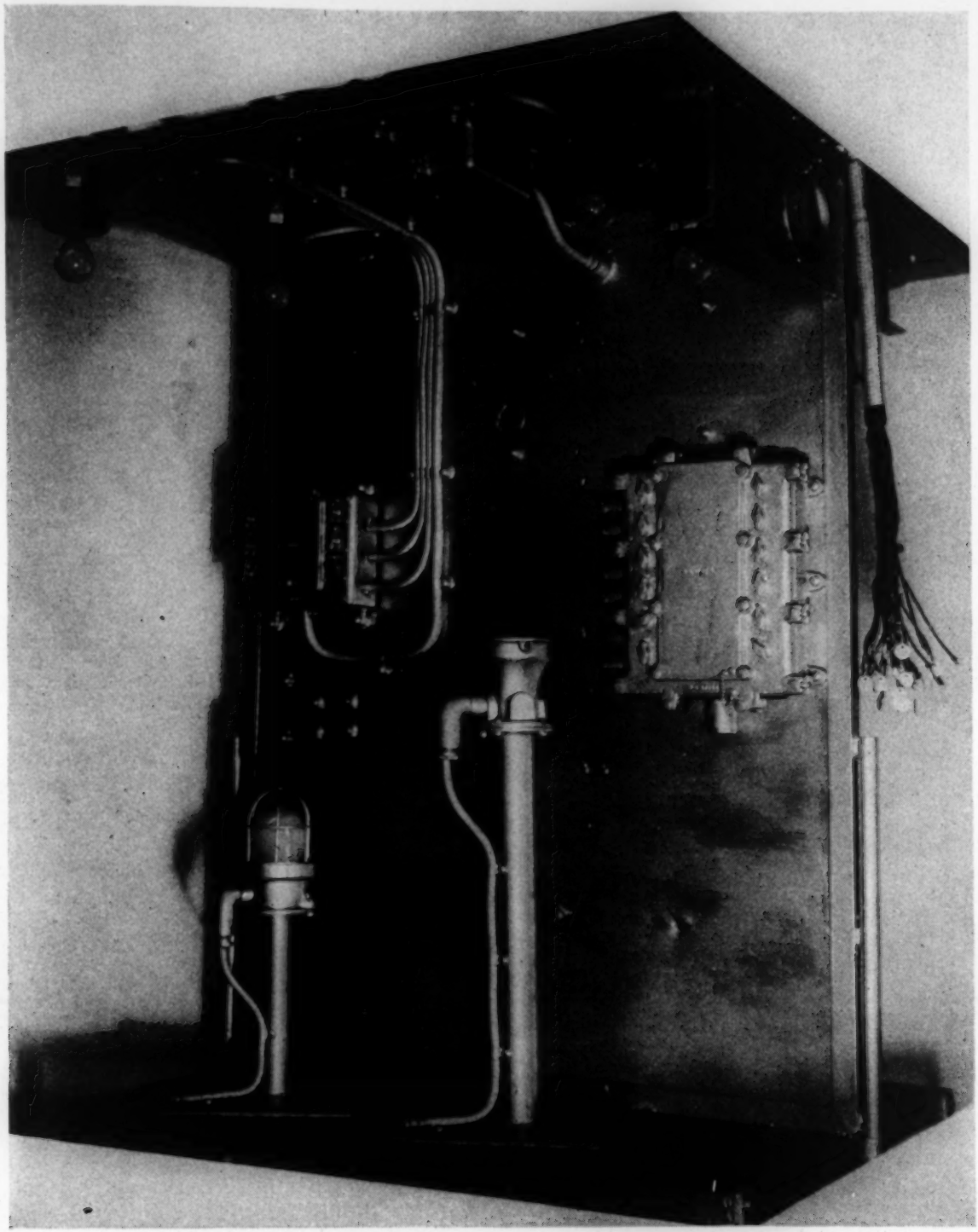
Windless.—The machine used to hoist the anchors.

Wind Scoops.—A device used to divert air into a compartment of a ship through an air port.

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Figure 21—Practice in running and connecting branch circuits



Section at left in illustration shows regular non-watertight, branch-circuit installation employed as a model for practice purposes. For comparison, a watertight box is provided at right center. . . . Below are models showing proper method of installing lighting units in engine rooms. . . . The cable end hanging loosely at right side of panel is part of a 20-pair cable, 40 feet in length, used for practice in testing out and proving cable.

TRAINING WITHIN INDUSTRY

Labor Division

WAR PRODUCTION BOARD

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For information or advisory assistance concerning training problems, apply to the Training Within Industry district office nearest you.

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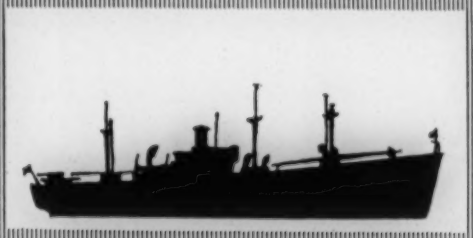
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BUILDING SHIPS FASTER THROUGH TRAINING

Training for Arc Welding and Acetylene Burning in a Shipyard

TRAINING WITHIN INDUSTRY

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY
WAR MANPOWER COMMISSION
Washington, D. C.

TRAINING IN SHIPYARDS

The purpose of this series of bulletins is to help shipyard managements man their yards with competent workmen, under present-day conditions.

Management's most pressing problem today is manpower . . . the manpower with which to contribute its share of three launchings a day. But manpower at this time means using inexperienced men, most of whom have never seen a shipyard. On them management must depend to build more ships.

Some yards, however, are getting amazing results with beginners. Good ships are being completed in record time with working forces composed largely of men who were totally inexperienced some months before. Planned, short-term training and specialized operations are chiefly responsible. These are the same methods that have enabled other war industries to multiply again and again their output of tanks, guns, and planes.

The experience of shipyards that are most successful with these methods is being analyzed and recorded by Training Within Industry for the benefit of other yards that have similar problems.

This bulletin describes the practices that a large yard on the Atlantic coast employs to expand the working force in arc welding and acetylene burning.

C. R. Dooley, *Director,*
Training Within Industry.

Training for Arc Welding and Acetylene Burning in a Shipyard

To overcome the handicap of a serious shortage of arc welders and acetylene burners is a pressing problem of all shipyards, and it is generally realized that its only solution lies in the short-term training of inexperienced men. Various yards are tackling this problem, each in its own way, but they are all working toward one objective—a shortcut in the transformation of a beginner into a competent specialist.

For the purposes of this bulletin a study has been made of the program and methods adopted and followed by one of the older and larger eastern shipyards, to which we shall refer as Yard A. It was established some 50 years ago and has made a notable record for the maintenance of the highest standards of marine workmanship. In the war emergency its facilities are devoted to the building and repairing of fighting ships and naval auxiliaries, and over the last 3 years Yard A has expanded enormously, with a proportionate large increase in its volume of welding work.

During the same period the supply of skilled workers in this occupation has fallen off steadily until within recent months almost none had been available. Yard A has been committed to and is a staunch advocate of the apprentice system, having a present apprentice enrollment of more than 1,000; but in the situation presented by the shortage of arc welders and acetylene burners it was obvious that the company must resort to short-term training for all workers who were to be classified in these occupations. The time element was recognized as a prime factor in this program. Just as a straight line is the shortest distance between two points, so would the best training system be the spanning of the gap between beginner and qualified workman in the shortest possible time.

This called for training of the most practical kind. It had to be detailed in order to be efficient, but details not absolutely essential were cut out. At the same time, however, training shortcuts adaptable in other occupations could not be used in the instruction of the welder and the burner. For example, welding and burning cannot always be taught directly on the job, and for a very good reason. A beginner may make a weld that has all the appearance of a good weld but upon testing will be found lacking in the depth and strength necessary to meet rigid Navy requirements, and would result in a spoilage of critical metal which must be avoided. Therefore, training by utilizing scrap metal has had to be substituted for training on the job.

Training for welding occupations at Yard A is in three divisions:

1. Training for tack welding.
2. Training for arc welding.
3. Training for acetylene burning.



FIGURE 1

This building, used as a training center, has 100 training stations for arc welding. The generators are on the outside of the building. Note the height of the building and ventilators as aids for proper ventilation and drawing off of welding fumes.

PART I

New Workers—Tack and Arc Welding and Acetylene Burning

All potential employees for the welding occupations are given a thorough medical examination before being hired as trainees. Extra care is taken to see that these men have normal vision—with the aid of glasses, if necessary—and do not have lung trouble of any type (see Fig. 2). After passing the medical examination they are assigned by the Employment Department to the welding center for training as tack welders, arc welders, and acetylene burners. Tack welder trainees are usually under 21 years of age.

Tack and Arc Welding

The trainee reports to the welding center on one of three shifts and is assigned by the chief welding instructor to a welding booth. At the time of his employment he is advised as to what safety equipment it is necessary for him to have before starting his training. He then reports to the booth to which he has been assigned and meets his instructor. The maximum number of trainees to one instructor is 15.

The orientation program begins with the issuance of a booklet entitled "Safety in Welding," extracts of which are to be found in Part III of this bulletin. The trainee is taken around the training center and shown where to obtain his working material. He is then shown a display board of sample welds which are to be used as standards in doing his various exercises. He is advised by the instructor at that time to concentrate his attention on exercises 1 and 2. Pictures of the exercises are shown in Figure 3; list of exercises is shown in Figure 4. The instructor takes the trainee into the booth and acquaints him with the various pieces of equipment that he will use. The booth is shown in Figure 5. He is then taken outside the booth and shown the panel board which controls the current used. This is shown in Figure 6.

The instructor points out to the trainee the size and type of electrode that he will use. The proper electrode is inserted in the holder. With no current, the instructor demonstrates the proper method of striking an arc. The trainee then tries striking an arc, under the instructor's guidance. Headshields are adjusted and the current is turned on and the arc is actually struck. first by the instructor and then by the trainee, who continues striking an arc until this point in welding is mastered.

The instructor then demonstrates how to deposit a single bead. The trainee then endeavors to duplicate this demonstration. At first the instructor aids him in his hand manipulations, as proper hand motion is important in good welding. After the trainee has run a number of beads under the observation of the instructor he is then left to go ahead on his first exercise.

When the trainee has completed his first bead he shows his work to the instructor for criticisms. This is shown in Figure 10. The instructor at that time informs the trainee of the flaws that he has found and tells him how to overcome them. If necessary, the instructor puts on another demonstration. The trainee must complete the exercise satisfactorily before he is permitted to go on to the next one.

After completing the first exercise the trainee goes to the display board and acquaints himself with the second exercise. He then returns to his booth and with the help of the instructor starts this exercise. This is the standard procedure followed throughout the course.

Acetylene Burning

The trainee reports to the welding training center on the first shift and is then assigned to a training station. At the time of his assignment to a shift by the chief instructor of the welding training center he is advised as to what safety equipment it is necessary for him to have before starting his training. He then reports to the training station to which he has been assigned and meets his instructor. The maximum number of trainees to one instructor is 16.

The orientation program begins with the issuance of a booklet entitled "Safety in Welding," extracts of which are to be found in Part III of this bulletin. The trainee is taken around the training center and shown where to obtain his working materials. He is then made familiar with the equipment and is instructed in its use. This instruction starts with the important points the trainee should know and continues to the actual burning process. In addition to being well-grounded in the fundamentals of safety, the trainee is particularly instructed with regard to the safe use of the burning equipment.

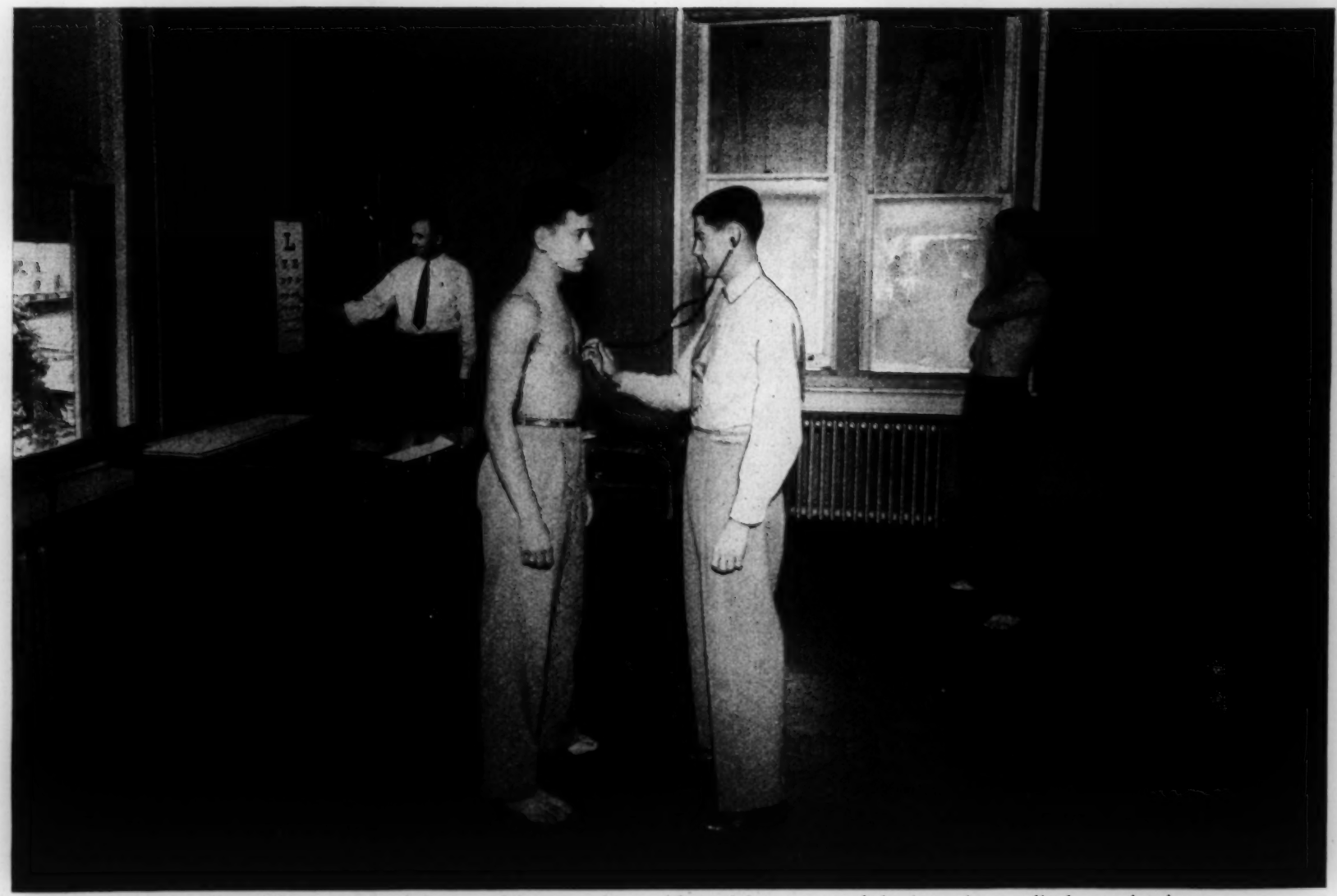


FIGURE 11

New trainees being examined for sound lungs and normal eyesight as part of the intensive medical examination given every new employee of Yard A.

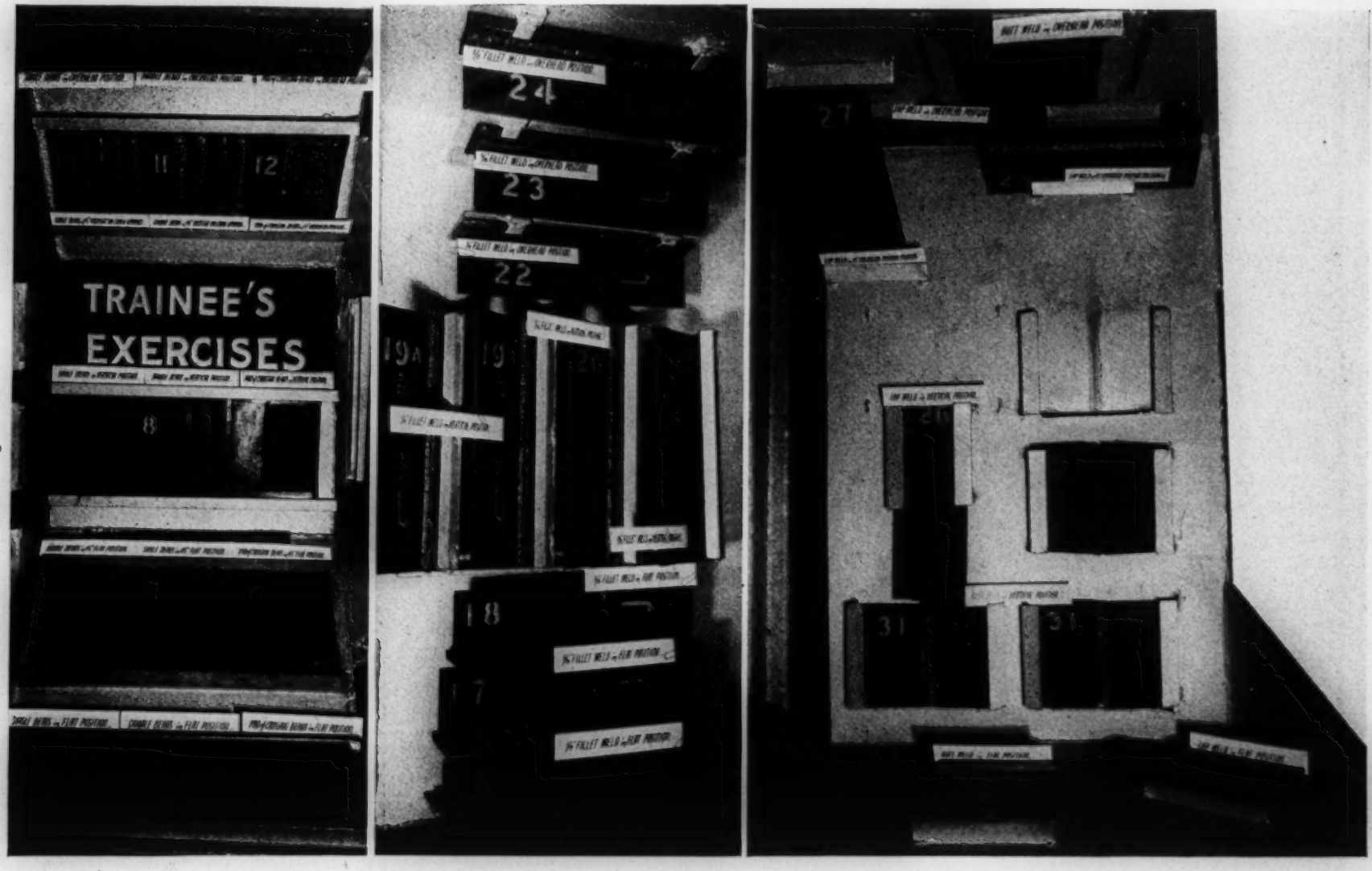
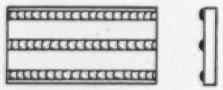


FIGURE III

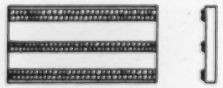
Display of exercises to be done by trainee welders.

FIGURE IV



PLATES ABOUT 6"X4"X $\frac{1}{8}$"

FIG. 1 - SINGLE BEADS



PLATES ABOUT 6"X4"X $\frac{1}{8}$"

FIG. 2 - DOUBLE BEADS



PLATES ABOUT 6"X4"X $\frac{1}{8}$"

FIG. 3 - PAD OF CROSSING BEADS.

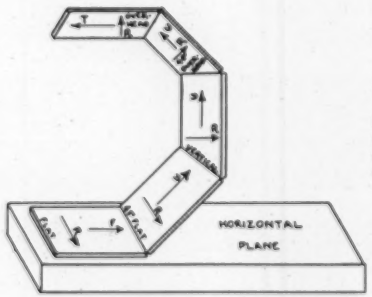
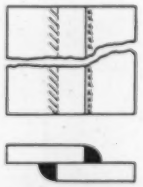


FIG. 7 - WELDING POSITIONS AND DIRECTIONS.



PLATES ABOUT 18"X8" - THICKNESS OF PLATES SAME AS SIZE OF FILLET.

FIG. 4 - TEE JOINT FILLETS



PLATES ABOUT 18"X6"X $\frac{1}{8}$"

FIG. 5 - LAP JOINT FILLETS.

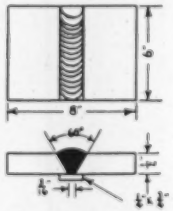


FIG. 6 - BUTT WELD

WELDING DIRECTION ABBREVIATIONS

R - FROM LEFT TO RIGHT.
F - AWAY FROM OPERATOR.
U - UPWARD.
T - TOWARD OPERATOR.

STUDENTS WHO WORK NATURALLY FROM RIGHT TO LEFT WILL BE PERMITTED TO DO SO.

	32	BUTT WELD IN OVERHEAD POSITION.	FIG. 6	T
	31	BUTT WELD IN VERTICAL POSITION.	FIG. 6	U
	30	BUTT WELD IN FLAT POSITION.	FIG. 6	F
	29	LAP WELD IN OVERHEAD POSITION.	FIG. 5	R
	28	LAP WELD IN 45° OVERHEAD POSITION - WELDING HORIZONTALLY.	FIG. 5	R
	27	LAP WELD IN 45° OVERHEAD POSITION - WELDING UPWARD.	FIG. 5	U
	26	LAP WELD IN VERTICAL POSITION.	FIG. 5	U
	25	LAP WELD IN FLAT POSITION.	FIG. 5	R
	24	$\frac{3}{16}$" FILLET WELD IN OVERHEAD POSITION.	FIG. 4	R
	23	$\frac{5}{16}$" FILLET WELD IN OVERHEAD POSITION.	FIG. 4	R
22	22	$\frac{1}{4}$" FILLET WELD IN OVERHEAD POSITION.	FIG. 4	R
	21	$\frac{3}{16}$" FILLET WELD IN VERTICAL POSITION.	FIG. 4	U
	20	$\frac{5}{16}$" FILLET WELD IN VERTICAL POSITION.	FIG. 4	U
19	19	$\frac{1}{4}$" FILLET WELD IN VERTICAL POSITION.	FIG. 4	U
	18	$\frac{3}{16}$" FILLET WELD IN FLAT POSITION.	FIG. 4	R
	17	$\frac{5}{16}$" FILLET WELD IN FLAT POSITION.	FIG. 4	R
16	16	$\frac{1}{4}$" FILLET WELD IN FLAT POSITION.	FIG. 4	R
	15	PAD OF CROSSING BEADS IN OVERHEAD POSITION.	FIG. 3	T & R
14	14	DOUBLE BEADS IN OVERHEAD POSITION.	FIG. 2	T
13	13	SINGLE BEADS IN OVERHEAD POSITION.	FIG. 1	T
	12	PAD OF CROSSING BEADS IN 45° OVERHEAD POSITION.	FIG. 3	U & R
11	11	DOUBLE BEADS IN 45° OVERHEAD POSITION - WELDING UPWARD.	FIG. 2	U
10	10	SINGLE BEADS IN 45° OVERHEAD POSITION - WELDING UPWARD.	FIG. 1	U
	9	PAD OF CROSSING BEADS IN VERTICAL POSITION.	FIG. 3	U & R
8	8	DOUBLE BEADS IN VERTICAL POSITION.	FIG. 2	U
7	7	SINGLE BEADS IN VERTICAL POSITION.	FIG. 1	U
	6	PAD OF CROSSING BEADS IN 45° FLAT POSITION.	FIG. 3	U & R
5	5	DOUBLE BEADS IN 45° FLAT POSITION.	FIG. 2	U
4	4	SINGLE BEADS IN 45° FLAT POSITION.	FIG. 1	U
	3	PAD OF CROSSING BEADS IN FLAT POSITION.	FIG. 3	R & F
2	2	DOUBLE BEADS IN FLAT POSITION.	FIG. 2	R
1	1	SINGLE BEADS IN FLAT POSITION.	FIG. 1	R
LESSON NO. TACK-WELD COURSE	LESSON NO. WELD COURSE	DESCRIPTION	REFERENCE	DIRECTION OF WELDING

NOTE:- EACH LESSON IS TO BE REPEATED UNTIL EXAMPLES OF STUDENT'S WORK ARE SATISFACTORY TO THE INSTRUCTOR. FILLET & BUTT WELDS (FIGS. 4, 6, & 7), ARE TO BE BROKEN AND FRACTURES EXAMINED FOR FUSION, POROSITY, SLAG INCLUSIONS, ETC. EACH LESSON MUST BE PERFECTED BEFORE UNDERTAKING THE NEXT IN ORDER.

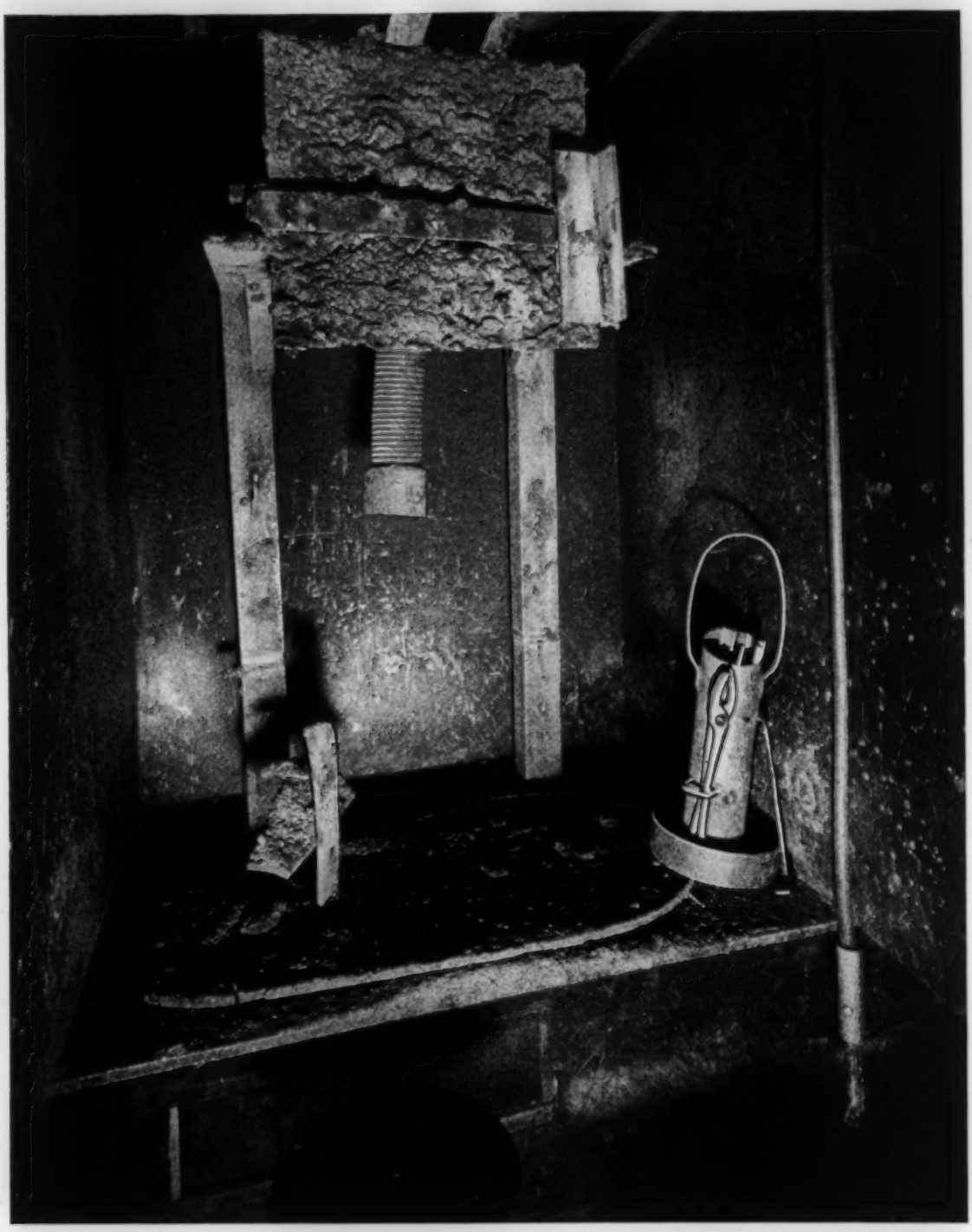
X92 - WELDING TRAINING DEPARTMENT

OUTLINE OF MANUAL ARC WELDING FOR TACK WELDING AND WELDING STUDENTS TRAINING COURSE.

DATE - 6-13-42

List of exercises for trainee welders.

FIGURE V



Inside a welding booth. Note the exhaust pipe and screened air inlet at the bottom. It is important that there be forced ventilation as well as facilities for exhausting fumes in any welding booth.

FIGURE VI



The arc welding control panel. This panel controls two arc welding stations. It should be noted that at Yard A the space occupied by two welding booths is a space ordinarily taken up by one in some training centers.

FIGURE VII

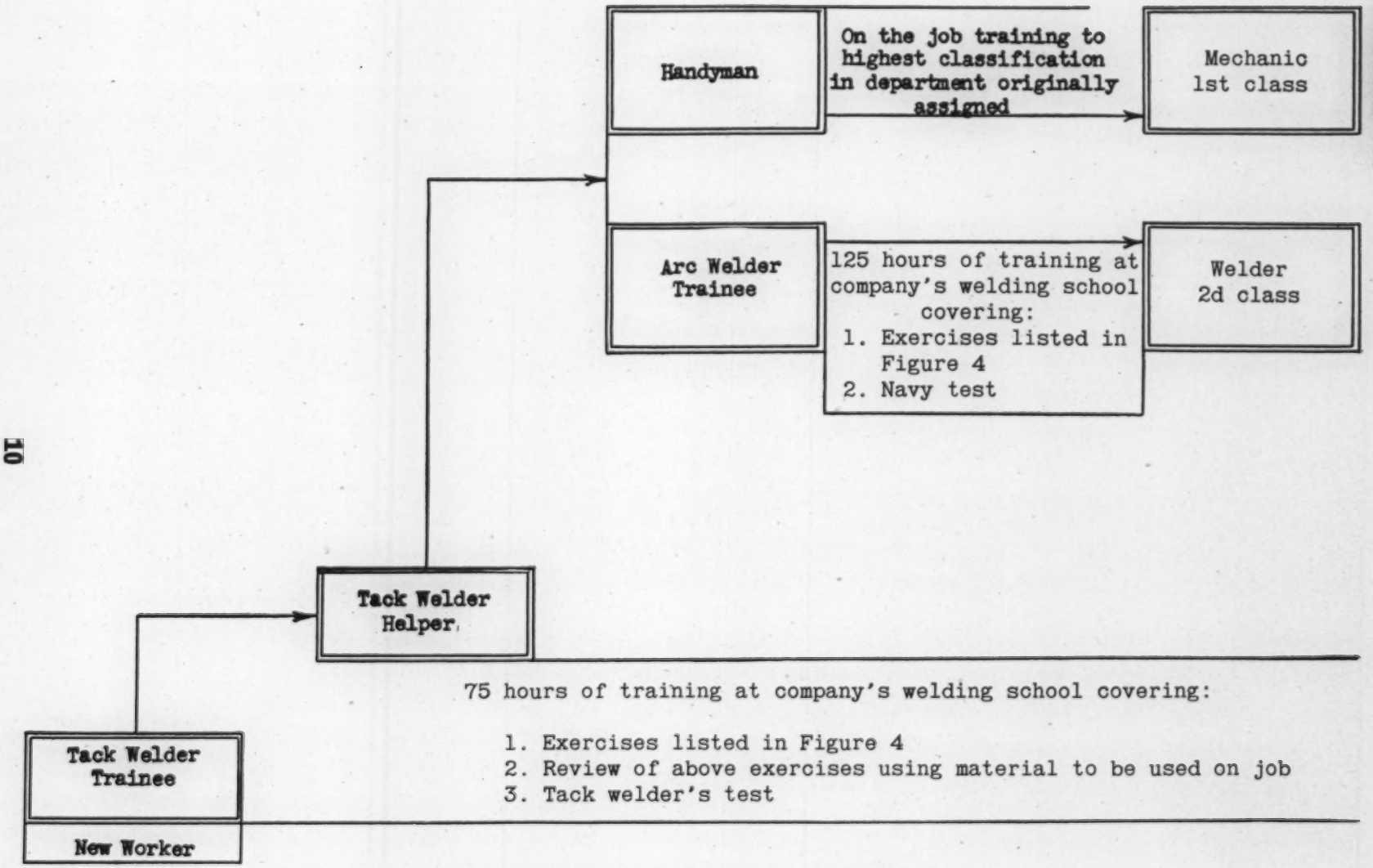


Chart for training and upgrading for tack welding.

PART II

Content of Training for Tack Welding, Arc Welding, and Acetylene Burning

Yard A has set up training with 150 training stations for arc welding and 16 for burning. These are in operation for three shifts of 8 hours each in one day for welders and one shift of 8 hours for burners. Therefore the company can provide training for 466 trainees. Figure 21 shows the number of men that have been trained since the first of the year and the number in training at the time of this report.

Tack Welding—75 Hours of Practical Training

As shown in Figure 4, the trainee in tack welding completes 12 exercises. After these have been completed and it has been determined to what department the trainee is to report, he is given training on tack welding of the material used in that department. He is then given the tack welder's test, which consists of tacking in both the vertical and overhead positions.

Arc Welding—200 Hours of Practical Training

The trainee for arc welding covers the 32 exercises listed in Figure 4. After these have been completed he is sent to the welding laboratory to take the Navy test (Fig. 14). This test is given under the supervision of a representative of the company and a representative of the Navy. The Navy test is the same at all shipyards where Navy work is being done. It consists of welding in two positions.

1. Vertical.
2. Overhead.

The size of and the procedure for obtaining the testing specimen are prescribed by the Navy. In the event that the trainee is not able to pass the Navy test on his first trial he is given another test. In every case so far, those trained at the company training center have been able to pass the Navy test on the second try.

Acetylene Burning—24 Hours of Practical Training

The trainee for acetylene burning covers simple burning exercises. There is no test given. He is graded by his instructor according to his ability to do the prescribed work.

Sometimes this particular yard has hired men who claim to be welders. Regardless of how much experience they profess to have, they are sent to the training center and are required to do the 32 exercises as shown in Figure 3. It has been found that an experienced welder can do the 32 exercises within 8 hours. If these exercises are successfully completed the welder is then given the Navy test. If he successfully passes this test he is immediately classified as a welder.

In some instances after a trainee has been at the training center for a short time the instructors find that he does not have the ability to become an arc welder but that he may be trained to do tack welding. After consultation with the chief instructor in charge of the welding training center, the instructor so advises the trainee. If it is agreeable to the trainee he continues the course for tack welding. If, as sometimes happens, a trainee cannot be trained as an arc welder or tack welder, it is suggested that he transfer to training for acetylene burning. In almost every instance such transferees have made the grade.

Source of Working Material

Yard A has been fortunate in having sufficient material on hand to keep the large number of trainees working on practice jobs. The material used is scrap metal collected from various parts of the yard. It is all mild steel plate, the major portion of which is $\frac{3}{8}''$ stock. This scrap material is delivered to the outside of the training center and piled up near the burners' training stations as shown in Figure 19. As part of their training the burners cut this material into usable sizes for the welding training center. In this way

the same piece of material serves two training situations. After it has been used in the welding training center it is thrown in the scrap pile and returned to the foundry for remelting.

Training Center

The first welding training center at Yard A was set up in a temporary building. When the company realized that it would have to continue a long-term training program for welding, it constructed a building sufficiently ample for its needs. The building includes all the necessary safety devices. Figure 5, which shows the booth, clearly typifies the careful planning by Yard A in building this modern training center. This figure shows the exhaust pipe located close to the holding jig, and the inlet pipe at the bottom of the booth through which air is forced to aid proper circulation. Figure 1 shows the generators and exhaust ventilators located on the outside of the building.

Report of Progress

The progress charts for trainees in tack welding and arc welding are shown on Figure 20. This record is filled in by the instructor after the successful completion of each exercise. On this chart are recorded the dates of completion and the number of hours spent on each exercise. This gives a definite check on the ability and progress of each trainee.

Before Assignment to Job

After a trainee has passed the prescribed test, he returns to the training center for instruction on the type of material and equipment he is to use on the job. He is given a demonstration of the control box (Fig. 17) used on the job. This box has the same switches as the panel board in use at the training center (Fig. 6). The instructor then talks with the trainee about safety practices that must be adhered to out in the yard. In discussing safety practices, the instructor stresses four points:

1. The proper method of using the ladder while welding (Fig. 15).
2. The workings of a blower to aid in the dissipation of fumes during welding (Fig. 16).
3. Proper operation of the welding controls (Fig. 17).
4. Precautions necessary in welding plate upon which cables have been fixed (Fig. 18).

UPGRADING POLICY

Tack Welders

After a tack welder has been on the job for approximately 3 months, his foreman decides if he should return to the welding training center so that he may qualify as a welder, or if he is qualified to be upgraded from tack welder helper to a first-class mechanic by training on the job.

As an example of this, a tack welder trainee is assigned to the sheet-metal shop as a tack welder helper and continues in this instead of going back to the welding training center. He is given on-the-job training and is upgraded in accordance with his ability till he reaches the classification of first-class mechanic (Fig. 7).

The tack welder helper who returns to the welding training center completes the welding course and then goes through the upgrading process as outlined for the welder (Fig. 8).

Arc Welder

The welder, after completing his training and successfully passing the Navy test, is classified as a second-class welder. As demonstrated by his ability he is upgraded to first-class welder. At that time his supervisor will have him specialize in one of two types of welding: pipe welding or welding of noncorrosive steel. Before he is permitted to do this welding, he is sent to the training center, where he is given some training on either one of the specialties to which he has been assigned. He then has to pass a test on his specialty. After successfully passing the test his classification changes to that of a specialist in either pipe or noncorrosive metal welding. The training for noncorrosive metal and pipe welding takes about 24 hours (Fig. 8).

Acetylene Burner

After the burner has finished his training at the center, which takes 24 hours, he is assigned to a job as a second-class burner. After having been on the job for some time he is sent back to the training center, where he is taught all operations and use of equipment involved in complicated burning. This instruction takes approximately 16 hours. He leaves the training center with the classification of a first-class burner (Fig. 9).

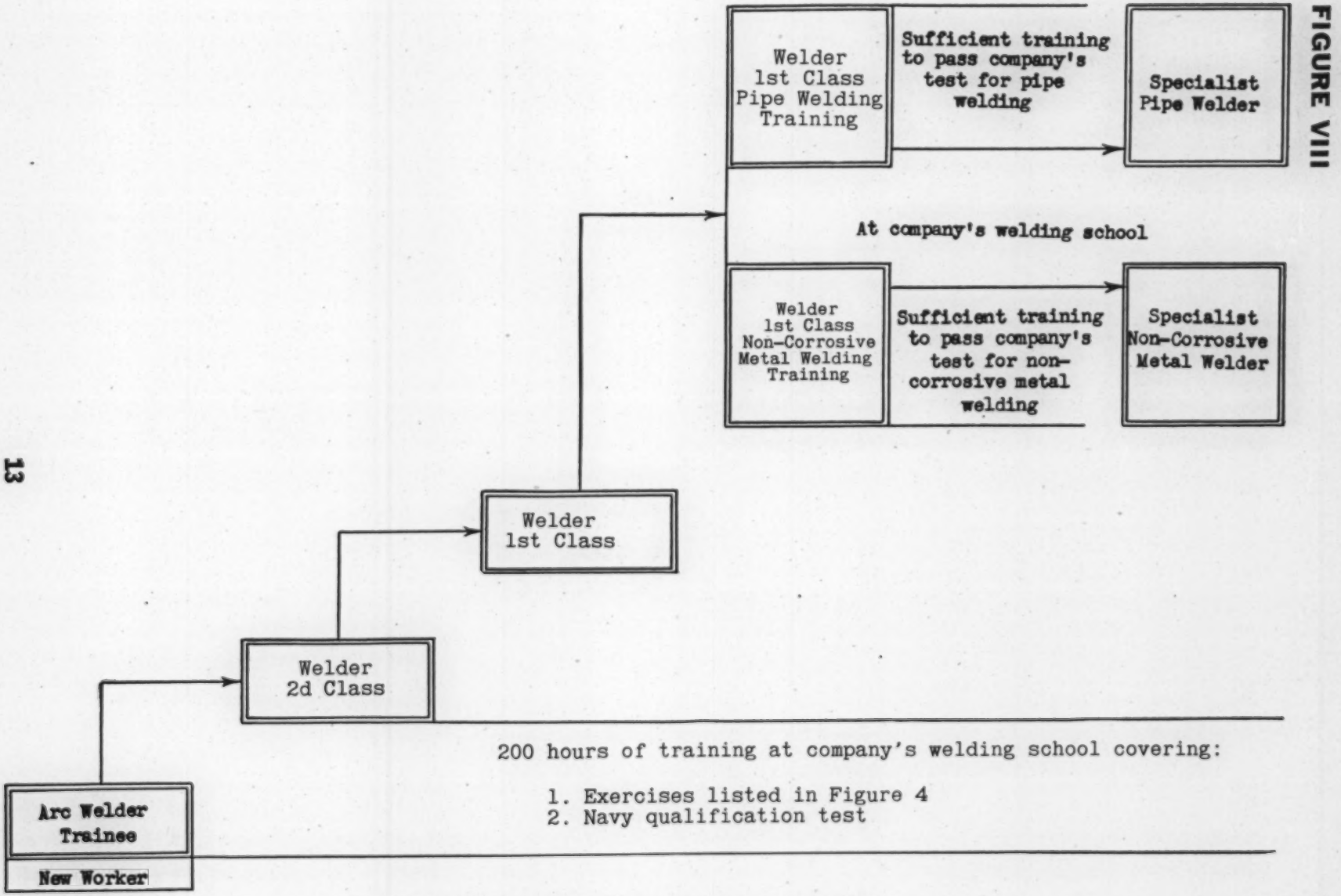


Chart for training and upgrading for arc welding.

FIGURE IX

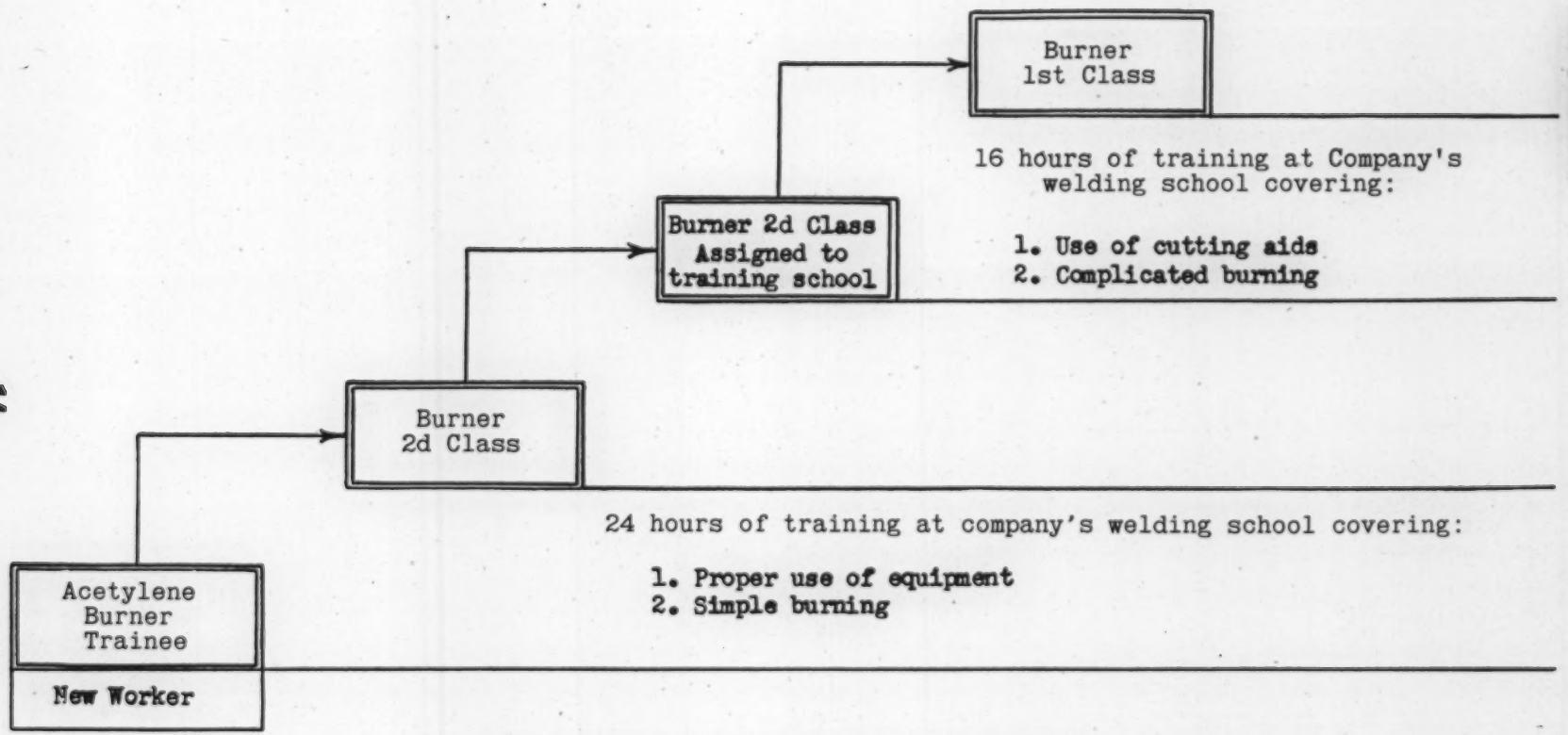


Chart for training and upgrading for acetylene burning.

PART III

Safety in Welding

Electric Arc Welding

Electric welding is the process of joining together, or fusing, two pieces of metal by means of heat supplied by an electric arc. The heat generated by the arc actually melts the metals, permitting them to flow together while at the same time additional melted metal is added from the electrode.

Experience has proved that a much stronger weld can be obtained if the electrode is coated with a flux, which, in the process of melting and burning, acts to prevent oxidation of the deposited metal.

Nowadays a great variety of materials, both mineral and organic, are used in compounding electrode coatings. Herein lies a safety problem of much concern, which will be discussed in detail later.

Health and Safety Hazards

It should be borne in mind that not only are welding operators subject to the hazards of welding, but other persons working in the vicinity of welding operations are equally exposed.

The hazards affecting the health and safety of welding operators and others working close to welders, during welding processes, result from electrical shock, burns, the action of injurious light and heat rays generated by the welding arc, noxious fumes evolved from the action of heat upon the metals and fluxes which are being fused, and from the improper use of welding equipment. The principal hazards fall under the following headings:

I. Electric Shock.
II. Burns.
  a. Caused by heat from the electric arc.
  b. Caused by hot splashing metal.
  c. Caused by radiant energy from the arc.
    (1) Ultraviolet rays.
    (2) Infrared rays.
    (3) Visible light rays of excessive intensity.
III. Fumes and Dust.
IV. Physical Equipment.

I.—Electric Shock

Wherever welding equipment is used, exceptional precautions against electric shock and burns are required. As a general rule, the actual electric shock caused by contact with welding equipment is of little importance. The voltage used on the welding equipment in this yard is relatively low, usually from 60 to 85 volts. It should be remembered, however, that welders are frequently required to work in positions where a trivial electric shock, harmless in itself, MAY BE SUFFICIENT TO CAUSE THE VICTIM TO FALL, thereby possibly causing severe injury.

Inasmuch as dampness increases the possibility of electric shock, the welder should always attempt to safeguard himself against possible electric shock by trying, as far as possible, to stand in a dry place and to keep his gloves dry while welding.

II.—Burns

a. While electric burns accompany electric shock, burns may also be received from the flame of an arc without the person receiving a shock. It should be remembered that the temperature of the welding arc is more than 6,000 degrees F., from which severe burns may result if exposed flesh is brought in contact with the flame.

b. Painful burns may also occur from hot metal splashing during the welding process, or from taking hold of welded parts before they are cool. Hot, splashing metal sparks are particularly hazardous when welding overhead and vertical. Often such sparks will fall into the welder's ears, down his collar and sleeves, or into his shoes, causing severe burns to his flesh.

Correct clothing is the only safeguard against such burns. Leather has been found to be the most serviceable material for welders to wear. Entire suits of leather, including trousers, jackets which fit closely at the neck and wrists, spats for low cut shoes, and gloves to cover the hands, are available and may be worn to protect one's self

from burns while welding. Ear plugs may be worn to prevent sparks from falling into one's ears.

Each welder should select his welding clothes with the same care that he selects his dress clothes, for they are extremely important to his safety. It is well known that any mechanic does his best work when supplied with the best tools, and the welder's clothes are as much a part of his tools as his electrode holder.

c. Ordinary light given off by the sun—daylight—contains a number of different rays. Some we see and call visible rays, or light; others we cannot see and call invisible rays.

The invisible rays that we are most interested in are the ultraviolet and infrared rays, both of which are given off in vast quantities by the electric welding arc. It is these invisible rays from the sun that cause what is commonly known as sunburn. The same effect is also obtained from exposure to the electric arc, since the arc is rich in these rays.

The action of ultraviolet rays may cause very painful irritation of the eyes on slight exposure. These rays act upon the eye almost instantaneously, and sometimes at quite a distance, causing a burn of the eye. When the intensity of ultraviolet rays is high, the skin may also be affected with reddening, or burns, similar to sunburn. As in sunburn, the effect is not immediately felt, hence the danger of even brief exposure.

Infrared rays act upon the eyes simply as heat. But they may greatly irritate the eye, and their action increases the injurious effects of the ultraviolet rays.

Exposure to the excessive brightness of the visible light from the welding arc also should be avoided, as well as exposure to the invisible rays.

Hence, one should NEVER LOOK AT THE WELDING ARC WITH THE NAKED EYE.

In arc welding, therefore, both the eyes and skin of the operator must be thoroughly protected from these harmful rays. Here again we see the necessity of correct clothing.

To supplement the leather clothing mentioned earlier, a shield built of a nonconducting material with special protective glass is needed by the welder to protect his face and eyes. This protective glass is so designed that it will not be penetrated by the invisible ultraviolet or infrared rays, yet it will allow enough visible light to pass so that the welder has clear and accurate vision with as little distortion as possible. This special dark lens, however, is quite expensive and must be protected from hot flying sparks by a clear glass placed immediately in front of the dark lens. This clear glass should be replaced from time to time as necessary.

In shipbuilding, it is often necessary for more than one welder to work in the same area. Where several welders are working in the same vicinity, dark goggles should be worn under the shield to safeguard the welder's eyes against flashes from the arcs of other welders when his shield is raised.

Care should also be used when working near workmen of other trades whose eyes may be unprotected. Serious eye injuries may be inflicted by flashes from the welding arc on workmen who necessarily must be in the same vicinity as welders. To safeguard the eyes of others, all welding should be screened wherever possible when carried on near other workmen. Adequate screening equipment is furnished by the Welding Department. The supervisor can direct his workers where to obtain such screens if they do not already know.

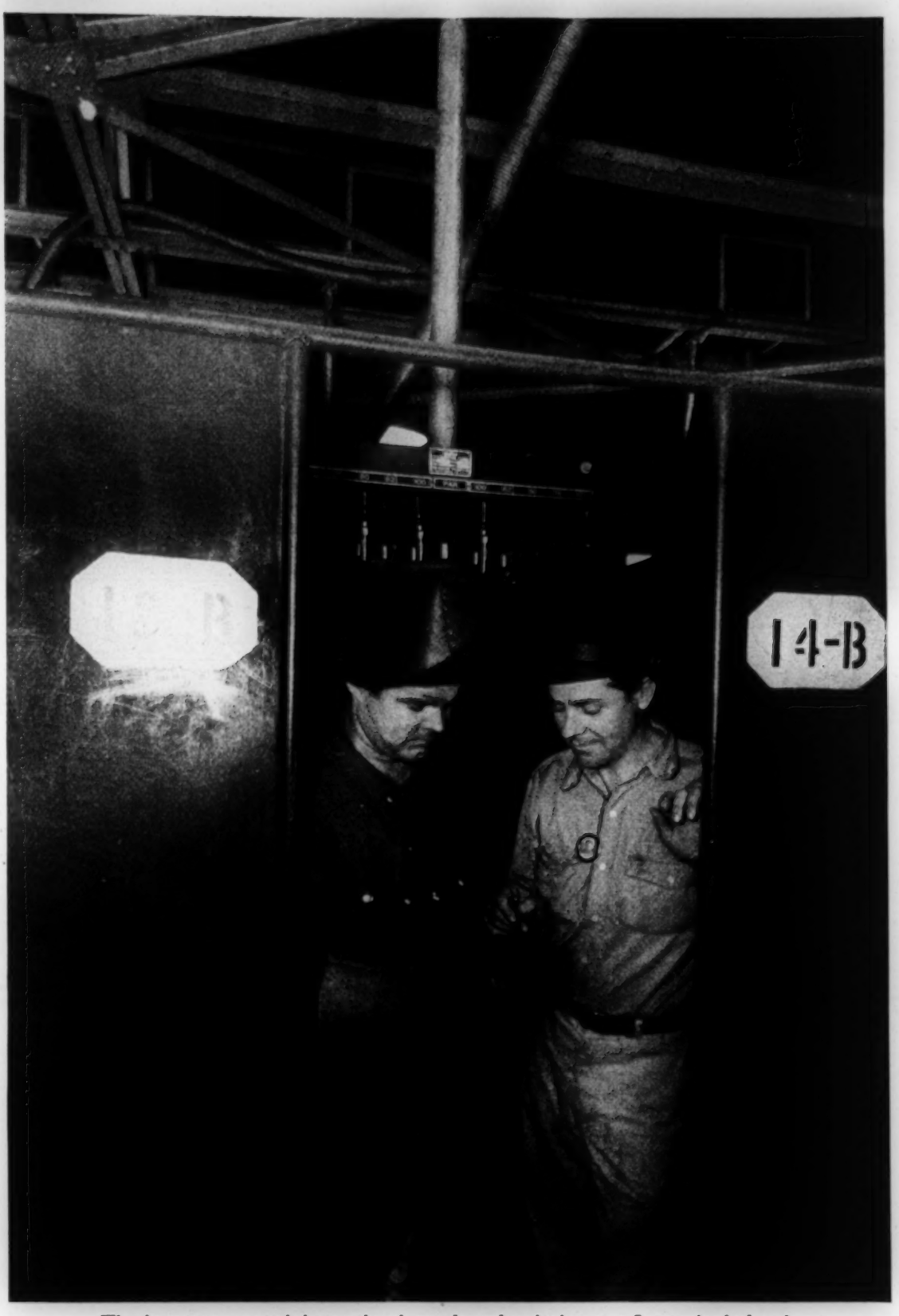
III.—Fumes and Dust

The most commonly encountered metallic oxide given off in the form of a fume or dust in welding processes is iron oxide. While somewhat annoying in heavy concentrations, no harmful effects from iron oxide fumes are known to exist.

Welders working with certain metals, however, are known to experience various illnesses. The fumes, or dust, from these welding processes may originate from several sources: the materials welded, the coatings of the surfaces being welded, or the coatings of the electrodes used in arc welding.

The chief noxious fumes encountered in the welding processes in Yard A are zinc oxide fumes which occur in welding galvanized iron. "Zinc chills," or "metal fume fever," are the terms given to the physical effects of breathing these fumes. As a rule, though uncomfortable and sometimes briefly disabling, these chills are not dangerous and have no detectable aftereffects. However, the briefly disabling period which may

FIGURE X



The instructor examining trainee's work and pointing out flaws, single bead.

result from inhaling zinc oxide fumes may last as long as 24 hours and be accompanied by stomach disorders, chills, and vomiting.

Noxious fumes also occur from welding cadmium-coated metal and from the electrodes used in welding stainless steel or monel metal. In concentrations which might occur in confined spaces, these fumes may cause discomfort to the throat and respiratory passages of the welder. Inhaling these fumes, therefore, should be avoided.

Exhaust blowers equipped with lengths of 3-inch, flexible metal tubes are available for use in confined spaces where welding of galvanized iron, cadmium-plated metal, or monel metal is carried on. If the ends of these tubes are kept from 3 to 6 inches from the welding arc, practically all of the fumes will be exhausted. All welders are cautioned to use this equipment when welding galvanized iron, cadmium-plated metal, or monel metal in confined spaces.

In addition to the exhaust equipment for use when welding these metals, respirators are furnished for all welders. A respirator, when used in confined spaces with the exhaust equipment available, will give adequate protection against inhalation of noxious fumes. DON'T BECOME SICK FROM INHALING THESE FUMES AND LOSE TIME AND WAGES—USE A RESPIRATOR AND THE EXHAUST EQUIPMENT PROVIDED FOR YOUR HEALTH AND SAFETY!

IV.—Physical Equipment

Welding Lines: Welding lines present a definite tripping hazard—especially aboard ships where many lines may be found in small areas. Welders are cautioned against the dangerous practice of leaving welding lines across ladders or passageways where other workmen may trip and fall over them. Wherever possible, lines should be laid along the side of the passageway—not in the center. If it is necessary to leave a line on a ladder or stairway, always leave the line at the side of the stairway or ladder. Never leave a line across a ladder or stairway where someone may slip on it and fall.

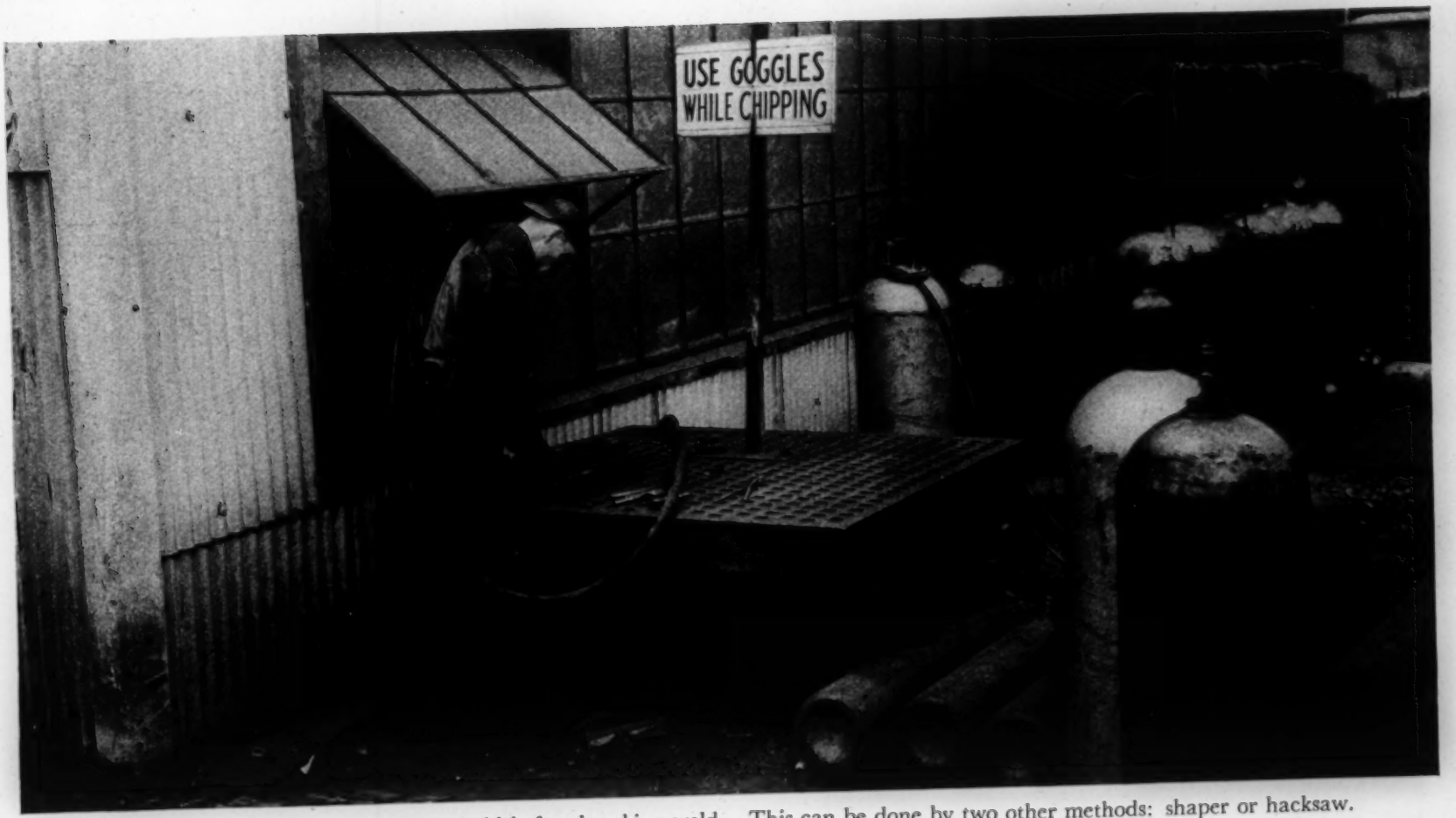
Resistor Boxes: Resistor boxes are a part of the tack welder's equipment. These small boxes present a hazard when placed where other workmen may trip or fall over them, or when placed on staging where they may fall and injure others. Welders are cautioned, therefore, against placing these boxes where others may trip and fall over them, or on staging from which they may fall. Try to place these boxes in out-of-way places where they will not endanger the safety of your fellow employees.

As a final word of precaution, the welder should be constantly alert against igniting material of any inflammable or explosive nature, which not only exposes him to a fire hazard but also endangers the safety of all other employees working nearby. Remember, too, that if fire should overtake us—YOUR JOB MAY GO UP IN SMOKE!

Summary

1. As far as possible try to work in a dry place.
2. Wear adequate protective clothing to safeguard yourself against possible burns from either the welding arc or splashing hot metal.
3. Protect your eyes and face with a welding shield.
4. Wear dark goggles under your shield when working near other welders.
5. Protect the eyes of other workmen from flashes by screening your work.
6. Use the exhaust equipment and respirators furnished for your protection while welding on galvanized metal, cadmium-coated metal, or monel metal in confined spaces.
7. Leave welding lines along the side of passageways, ladders, and stairways where they will not become a tripping hazard to others.
8. Place resistor boxes in out-of-way spaces where they cannot be tripped over or fall on other employees.
9. Guard against igniting inflammable or explosive material which may cause a fire hazard.
10. If you should be injured in any way, regardless of how slightly, REPORT TO THE CLINIC IMMEDIATELY for medical attention. Don't take a chance on infection!

FIGURE XI



Chipping a ⅛"-deep line in a butt weld before breaking weld. This can be done by two other methods: shaper or hacksaw.

FIGURE XII



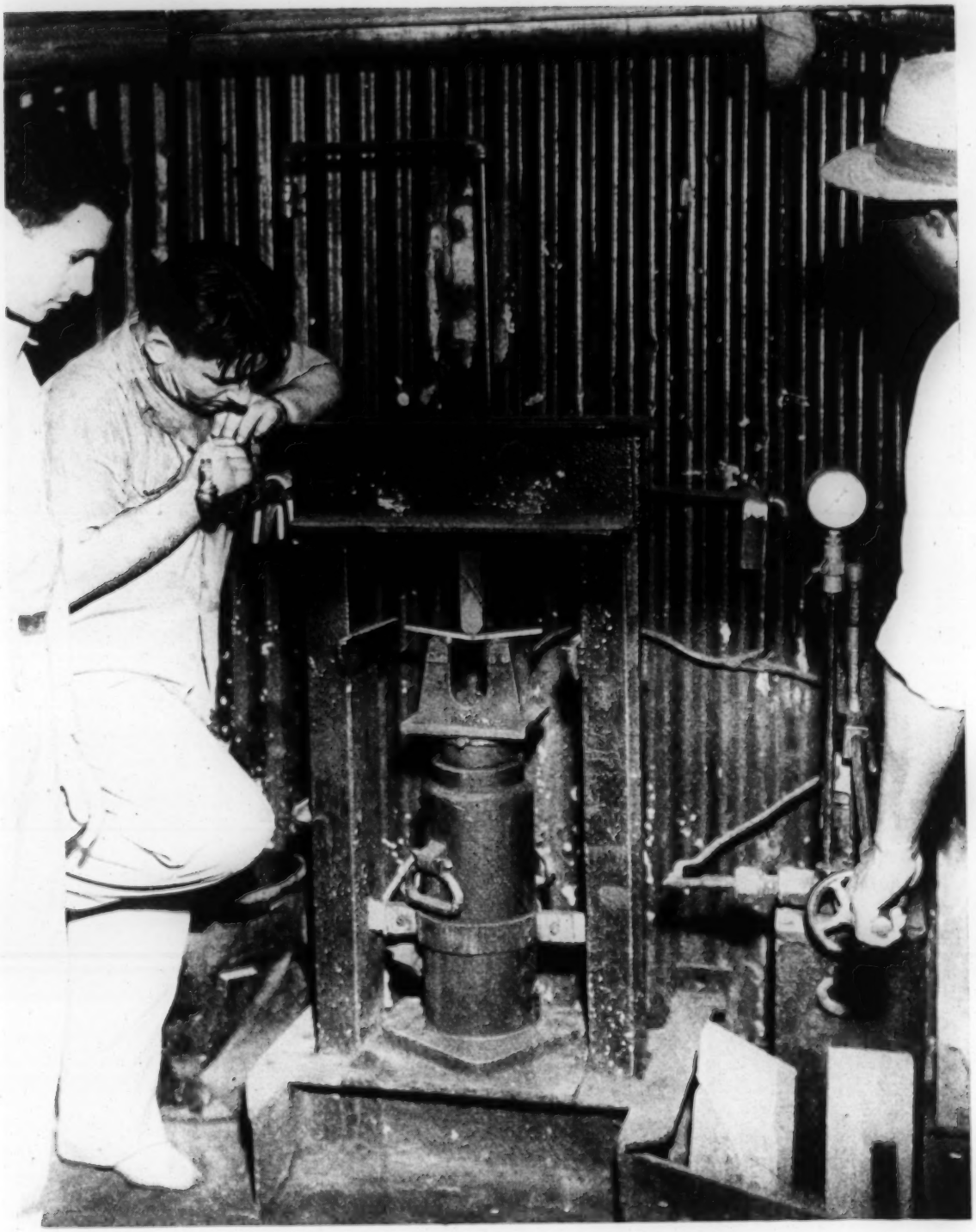
Breaking of butt weld in hydraulic jack.

FIGURE XIII



Gaging the T weld.

FIGURE XIV



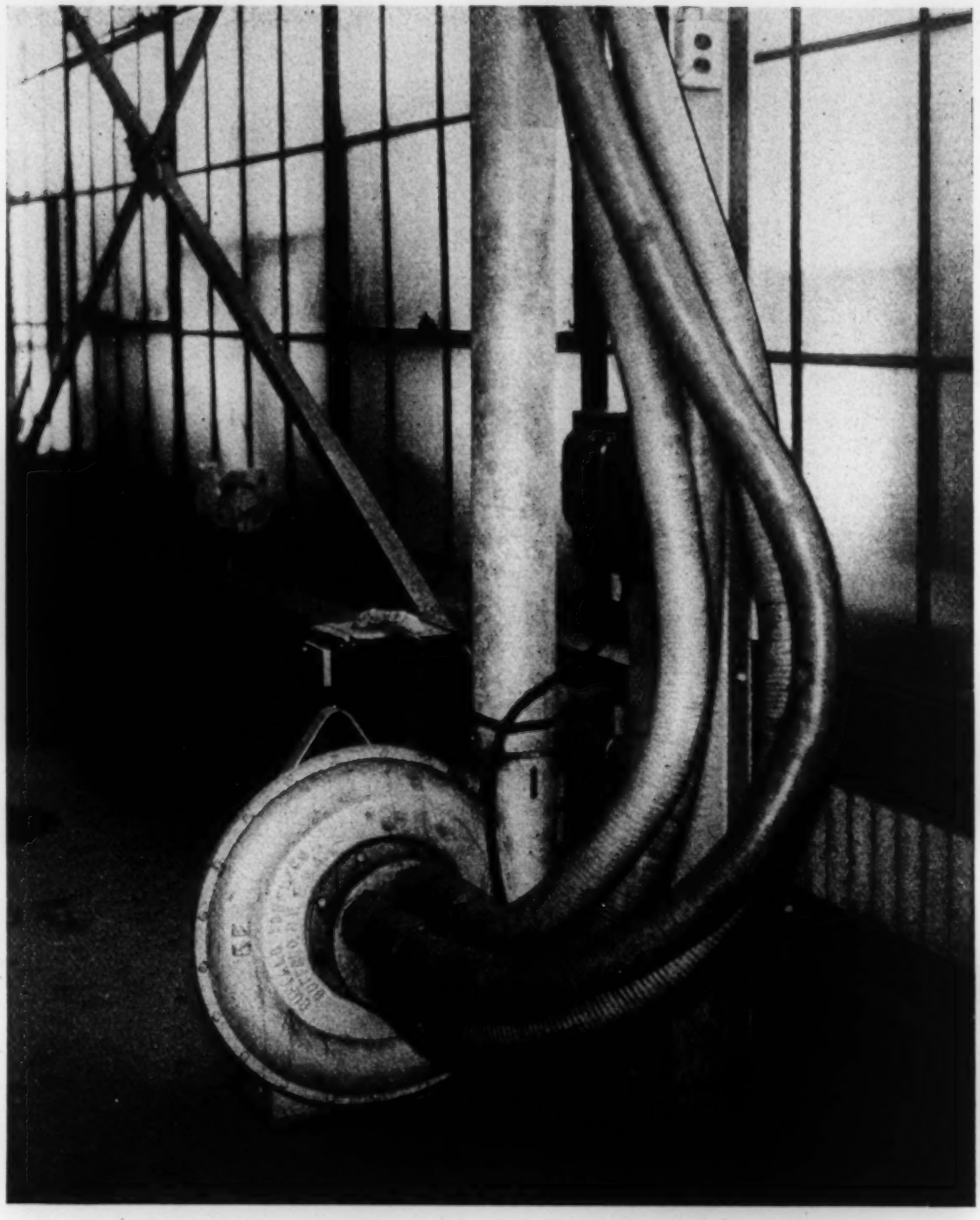
Testing a specimen for the Navy test.

FIGURE XV



A safety talk by instructor to trainee who has completed his training.

FIGURE XVI



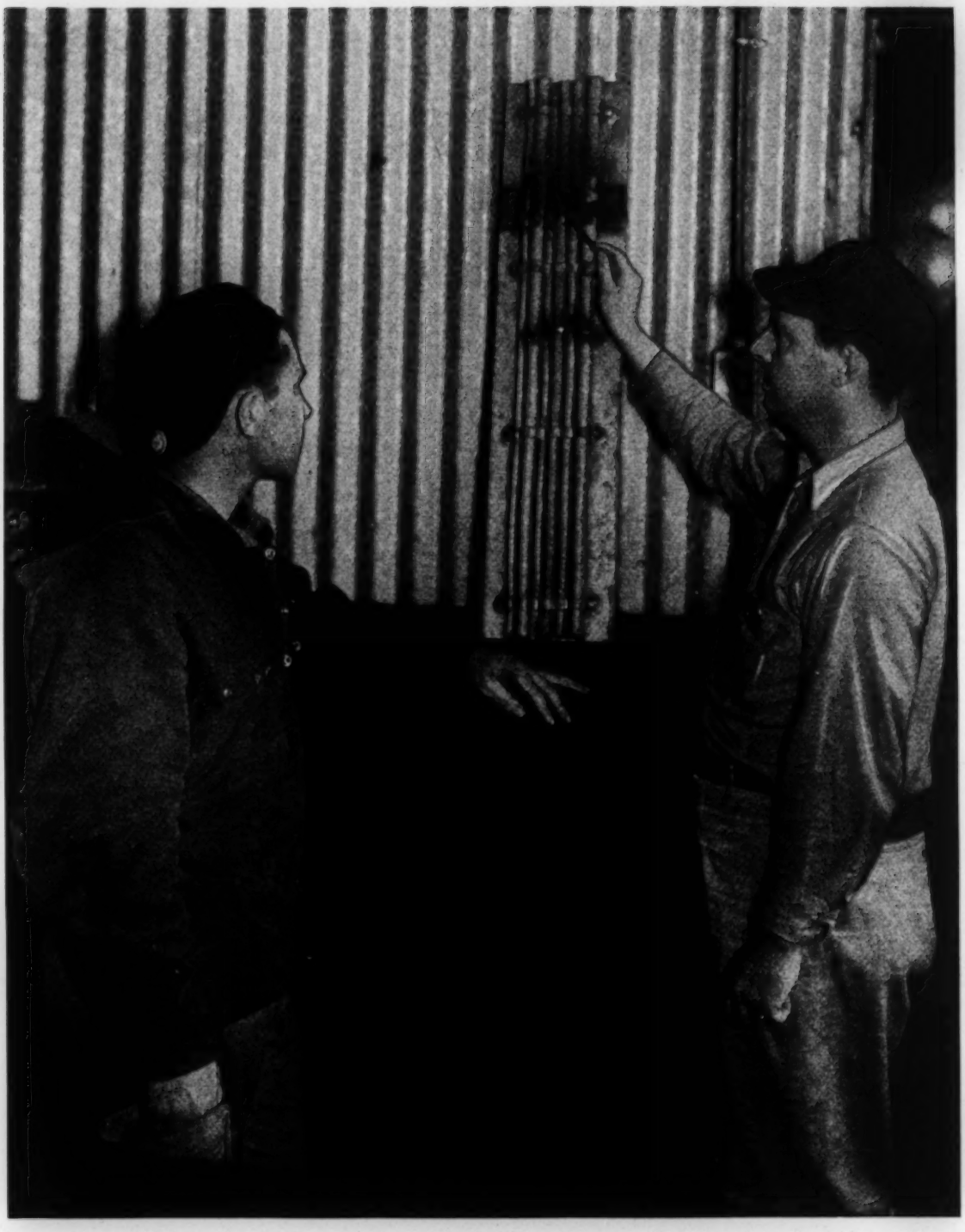
A typical exhaust fan used throughout the yard where welding is being done.

FIGURE XVII



Chief Instructor explaining control box to trainee who has completed his training.

FIGURE XVIII



Instructor pointing out to trainee results of welding on plate, to the other side of which cables or other equipment have been fastened, emphasizing that welders should look on other side of plates before welding. The picture also shows what happens to cables when electrodes are carelessly drawn across them.

FIGURE XIX

Some of the burners in training. Scrap pile from which pieces are cut for welding training is piled in front of tables.

FIGURE XX

Training progress record chart.

CHECK No. NAME CHART No.

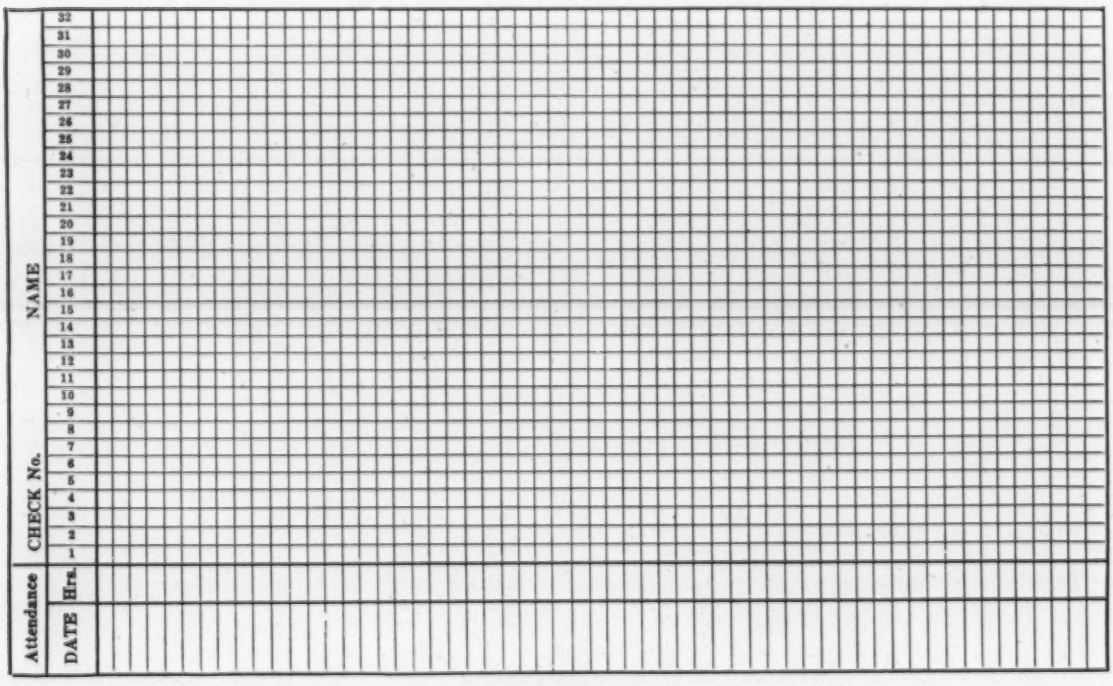
DATE STARTED	DATE FINISHED	DATE TESTED	TOTAL HOURS

REMARKS:

X92 Welding School

Training Progress Record Chart—Metal Arc Welding

(FRONT OF CARD)



(REVERSE OF CARD)

FIGURE XXI

REPORT ON WELDING TRAINING FOR MONTH ENDING May 30, 1942.

DEPARTMENT	PREVIOUSLY TRAINED	FINISHED THIS MONTH					Total Trained Since Jan. 1	NOW IN TRAINING				
		Welders	Tack Welders	25/20 Tack Wds.	Gas Welders	Burners		Welders	Tack Welders	25/20 Tack Wds.	Gas Welders	Burners
Anglesmiths												
Boilermakers	48		13	2			63					
Coppersmiths	18						18					
Drillers												
Erectors												
Fitters	697		229	58			984			6		
Joiners	68		31				99					
Plumbers	74		14				88					
Riveters												
Sheet Metal	109		28	12			149					
Ship Carpenters	16		3	1			20					
Ship Shed												
Shipwrights	103		34	1			138					
Welders	763	158		129			1050					
Welding Training								176	159			
Burners	165					45	210					13
Machine Shop	1						1					
Total		158	352	203		45		176	159	6		13
Sub Total	2062					758						
GRAND TOTAL							2820					354

Report on welding training for month.

High Spots in the "TWI" Program

1. This is ***not a policy-making program.*** It gives no consideration to whom an employer shall hire, how many, or when.

2. It is a practical ***advisory service,*** dealing only with training methods and procedures. It disseminates the latest, factual information based on ***current experience of industry.***

3. It is ***concerned only with workers on pay rolls,*** where training is carried out right on the job within plants. ***Workers learn by doing—produce while learning!***

4. It shows employers how to ***get skilled operation from all grades of workers*** through intensive instruction at the job level.

5. It aids in the development of ***practical plans for upgrading workers*** to higher skilled jobs as rapidly as their ability warrants.

6. It renders specific aid to plants in the ***development of foremen and leadmen*** so that they become better supervisors.

7. "TWI" cooperates with the Apprentice-Training Service in promotion of attention to the development of all-round skilled craftsmen.

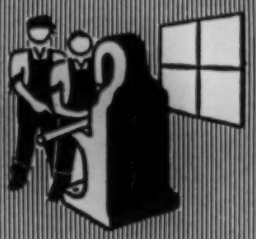
8. It works for ***closer cooperation*** between local industry and local governmental placement and training in order to meet employers' definite needs.

9. The entire "TWI" program is carried on with the advice and ***backing of both labor and management.***

10. Training Within Industry service is rendered by ***experienced industrial personnel and training experts loaned to the War Manpower Commission by industry itself.***

CONTACT YOUR NEAREST "TWI" DISTRICT OFFICE FOR COMPLETE DETAILS

U. S. GOVERNMENT PRINTING OFFICE 481927



MORE PRODUCTION THROUGH TRAINING

Training Workers for Toolroom and Machine Repair

TRAINING WITHIN INDUSTRY

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY
War Manpower Commission
Washington, D. C.

Manufacturers who are having difficulty meeting production schedules in their toolroom and machine-repair sections are interested in the experience of other companies.

Proper and complete utilization of workers' skills are of utmost importance during this critical period.

Methods and practices used in the mass production of our war needs can be utilized in overcoming deficiencies in toolroom and machine-repair work.

The material contained in this example sets forth methods and practices of four companies who have solved their toolroom and machine-repair problems. The four companies who cooperated in making this example possible are the Wright Aeronautical Corporation, the National Acme Company, Thompson Aircraft Products Corporation, and the General Electric Company.

C. R. DOOLEY, *Director*,
Training Within Industry.

AVAILABLE IN-PLANT TRAINING ASSISTANCE

The report "Training Workers for Toolroom and Machine Repair," deals with training for skilled craftsmen and embodies many features which can be employed in setting up advancing worker programs to get workers sufficiently trained to get them into full production promptly.

In allocating training functions within the Bureau of Training of the War Manpower Commission, the Apprentice-Training Service is charged with the responsibility of assisting industry in setting up apprenticeship programs to develop all-round skilled workers and advancing worker plans to develop skilled specialists.

Those interested in securing advice or assistance in developing in-plant applications to fit their specific needs should address an inquiry to the nearest Apprentice-Training Regional office listed below.

C. R. Dooley - Director
Training within Industry Division

Wm. F. Patterson - Director
Apprentice-Training Service

O - O

REGIONAL OFFICES

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February 4, 1943

Training Workers for Toolroom and Machine Repair

Most manufacturers of precision products recognize the value of manning their production lines with workers trained to operate one machine to as close tolerances as, and sometimes faster than, skilled workers. To achieve this end the necessary steps in performing the job are previously determined. However, only a few are aware that a similar type of employee and a like practice are equally valuable to help overcome deficiencies in production in toolroom and machine repair sections.

Such workers are generally called specialty operators and the practice of determining the necessary steps in performing the job is generally known as job break-down.

The shortage of skilled toolmakers and machine repairmen has long been apparent through the entire country. These two types of workers cannot be trained in two weeks, two months, or even two years.

Under normal conditions only 30 percent of the time of these skilled workers is spent on work which calls for the use of their highest skills. Approximately 70 percent of their time consists of preliminary machine operations and simple manipulative skills.

Since so large a percentage of time is spent on these operations, it is logical to determine the necessary steps in performing the jobs coming within the scope of the skilled workers and to provide help in covering those operations which specially trained workers can do. This will allow them to devote their working time to operations which require their highest skill.

These processes and practices are being used successfully at the Wright Aeronautial Corporation, the National Acme Company, Thompson Aircraft Products Corporation, and the General Electric Company. These firms have cooperated in making these surveys possible.

Job Break-down

The four companies utilize the job break-down method in doing tool work; by following this practice they are able to use trained operators as an aid in increasing their output.

This example shows clearly how this practice is used in companies which have had to expand both production and working force in a short time.

Some, like the General Electric Company, have a planning department to make up job break-down sheets for the making of tools. Other companies have the supervisory staff break down each job coming within its scope. This is done in the making of tools at Wright Aeronautical Corporation, Thompson Aircraft Products Corporation, and the National Acme Company; in the repairing of tools at the General Electric Company; and in the repair and maintenance of machines at the National Acme Company.

With this system of job break-down, as shown in the following examples, skilled workers are able to devote their full time to work that requires their highest skills, leaving specially trained operators and learners to the necessary preliminary machine operations and simple manipulative jobs.

Training

The objective of training as outlined in this example is to get the worker into effective production as quickly as possible.

The following chart summarizes the type of training designed to put the new worker into production and shows what happens to him after he is trained. More detailed information for each company follows.

Company	Training program
Wright Aeronautical Corporation.	Preproduction training (before definite assignment to production work). After his production period begins, and having mastered the skills needed in the operation of one machine, the new worker is transferred to other machines to acquire additional skills.
The National Acme Company.	Training on the job (direct induction method). After his production period begins, and having mastered the skills needed in the operation of one machine, the new worker is transferred to other machines to acquire additional skills.
Thompson Aircraft Products Corporation.	Training on the job (direct induction method). The new worker is kept on the machine for which he has been trained.
General Electric Company.	Training on the job (direct induction method) and preproduction training (before definite assignment to production). The new worker is kept on the machine for which he has been trained.

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The General Electric Company	43

WRIGHT AERONAUTICAL CORPORATION

With many machine tools in constant operation, a continuous supply of them is of utmost importance. Parts which are made by Wright Aeronautical Corporation are held to very close tolerances. Therefore, it is necessary that the tools used in manufacturing these parts be held to much closer tolerance.

Since 1939 Wright has expanded its plant facilities and working force by no less than 450 percent. This has necessitated expansion of the toolroom on a comparable scale. While the corporation had an excellent apprenticeship program in force for more than 10 years prior to this, the phenomenal expansion had not been anticipated. The apprentices enrolled in the program were quickly absorbed, and an additional method of manning the greatly enlarged or new toolrooms had to be found.

This plant, with many thousands of employees, is serviced by a toolroom staff of approximately 100 men. Thirty percent of these men, including the supervisory staff, are skilled workers; 55 percent are specialty operators, most of whom have been trained by the corporation and have been upgraded from learner (payroll classification on entering the toolroom from the training school) and learner-operator (payroll classification after having been in the toolroom for a short while and able to do work with little direct supervision). The remaining 15 percent are learner-operators and learners. The specialty operators, learner-operators, and learners do 70 percent of the toolroom work at this plant.

To solve the toolroom problem, the corporation used the same approach and methods it had successfully applied to manning its greatly enlarged production lines, namely: Job Breakdown, Training, Fitting in the New Worker, and Hiring Procedure.

Job Break-down

Every job coming into the toolroom is analyzed and broken down into specific operations by the supervisory staff of the toolroom. The processing is then assigned to toolmakers, specialty operators, and learners, dependent upon the amount of skill needed in the various stages of processing.

Breaking down each toolroom job is a great aid in fitting workers with varying skills into the making of a highly complicated tool.

Routing Work in the Toolroom

Supervisor —Gets blueprint of tool to be made from engineering section and assigns it to the foreman, with necessary instructions as to date of completion.

Foreman —Distributes jobs to assistant foreman with any additional instructions that he deems necessary.

Assistant Foreman —Analyzes jobs, using the break-down procedure, and assigns parts to be made to leadmen in charge of various batteries of machines.

Leadman —Assigns work to either specialty operator, learner-operator, or learner, according to the ability of the worker and the skill needed in processing.

Toolmaker—In some instances the finished parts are routed to the toolmaker, who fits them together, checks them, inspects them, and if necessary does minor bench work. This is done only when the tool being made consists of a large number of parts necessitating assembling and fitting. This, of course, is determined by the assistant foreman when the job is analyzed and a job break-down is made up.

Figures I–XII are intended to show clearly the method of making tools in the toolroom at Wright by using (1) job break-down, (2) having the work done by specialty operators, learner-operators, or learners.

Training

Training for work in the toolroom is given in a company-operated school which is staffed by instructors who have been taken from the corporation's plants and other plants. They are highly skilled operators of the various machines used throughout the plant. The length of the course for training of toolroom workers varies from a minimum of 7 weeks to a maximum of 12 weeks. This time is dependent upon the ability of the learner and upon the need for workers in the toolroom. The school is in operation at the present time for two shifts, each shift being in session 8 hours a day, 5 days a week. The training given in this school is divided into two parts: related training and shop training.

Related Training.

The first week of the training period is spent in the classroom on related work. The topics covered during the first week are: Shop Mathematics (fractions, decimals, areas, formulas, and their application to machine operation), Blueprint Reading (reading of shop blueprints, free-hand sketching, and reading of production operation sheets), Use of Measuring Instruments (instruction on the care and use of all types of measuring instruments that are used in the production shop and in the toolroom), Shop Theory (cutting speeds and feeds, transmission of power, heat, metals, gears, lubrication, coolants, and threads).

In addition, the trainees are shown a motion picture film on "Safety." All the machines used in the plant are shown in operation on the screen and safe practices are pointed out.

During the shop training period, necessary related information is given directly on the job. From time to time during the shop training period the trainees are given additional instruction in "Measuring Instruments" as the needs warrant.

Shop Training.

After one week of related training, the trainee is assigned to the machine. The backbone of this program is the standard operation sheet and blueprint which list the operations the trainee must go through in order to perform work and acquire skill rapidly and at the same time turn out consistently good work. Each sheet or blueprint is based on a detailed analysis of the job from both a production angle and teaching value. Figures X to X(L) illustrate the method used at the school in instruction for the making of a gear cutting arbor.

The training for work in the toolroom has been divided into three instructional divisions. These are:

1. External and internal grinding
2. Cutter grinding
3. Milling machine and lathe

Internal and External Grinding

Internal grinding	160 hours
External grinding	160 hours
Engine lathe	40 hours
Sensitive drill	40 hours
Surface grinding (rotary and horizontal)	40 hours

Training for Cutter Grinding

Internal grinding	160 hours
External grinding	160 hours
Surface grinding (rotary and horizontal)	40 hours
Cutter grinding	180 hours

Training for Milling Machine and Engine Lathe

Milling machine (vertical and horizontal)	120 hours
Engine lathe	120 hours
Drill press (radial and sensitive)	40 hours
Surface grinding (rotary and horizontal)	40 hours
Tool and cutter grinding	40 hours

One of the outstanding features in the school shop and of any training which is given after the trainee is assigned to the toolroom is working to close tolerances. The trainee has it impressed upon him that very close tolerances are necessary and can easily be met. The trainee at the school and the learner in the toolroom are constantly cautioned on the proper use and maintenance of the tools and machines they are using. Figure XIII is the rating plan which is used by the company in rating trainees and learners and is the basis for arriving at a judgment of their ability.

Figure XI shows the record which is filled in by the instructor in charge of a battery of machines at the school. This record is checked by the supervisor of training after the trainee has completed his work on a specific machine. This record is turned over to the toolroom supervisor when the trainee is assigned to the toolroom.

Fitting in the New Worker

After leaving the training school, trainees are put through an introductory session which includes the showing of a motion picture film on the building of an airplane engine in the plant, talks by the supervisory staff of the company on the company's rules and procedures, and a talk on safety.

The supervisor of the toolroom, after checking the trainee's record (Figure XI), assigns him to the machine on which he has received training. He is then classified as learner and is given the simplest machine or manipulative operations to do. These operations have been taken from the job break-down made by the supervisory staff. This work by the learner is under close supervision of leadmen, who are highly skilled operators. The learner is given work necessitating higher degree of operation skills in accordance with his demonstrated ability to do the previous job.

The learner's pay-roll classification advances with his ability to do the assigned work from learner to learner-operator and then to specialty operator. A typical case of progression (training combined with upgrading in the toolroom on lathe work) follows:

Learner—Work requiring a tolerance of $\pm .05''$.

Learner-operator—Work requiring a tolerance of $\pm .002''$.

Specialty-operator—Work requiring a tolerance of $\pm .0002''$ or closer.

After the learner has acquired the necessary skills required for the operation of the machine on which he has been producing work, he may be put on another type of machine to acquire the skills needed.

This change-over depends on the shop's need for work on the new type of machine and the worker's ability. If the worker then starts on the new machine, he begins with the simplest machine or manipulative operations and progresses through the various stages as on the first machine which he operated. This rotation of training may be done on all of the machines in the toolroom, if the work is applicable to this rotation and also if the worker's ability warrants it. There is no specified time for remaining on each machine, since the ability of the worker is the deciding factor.

Hiring Procedure

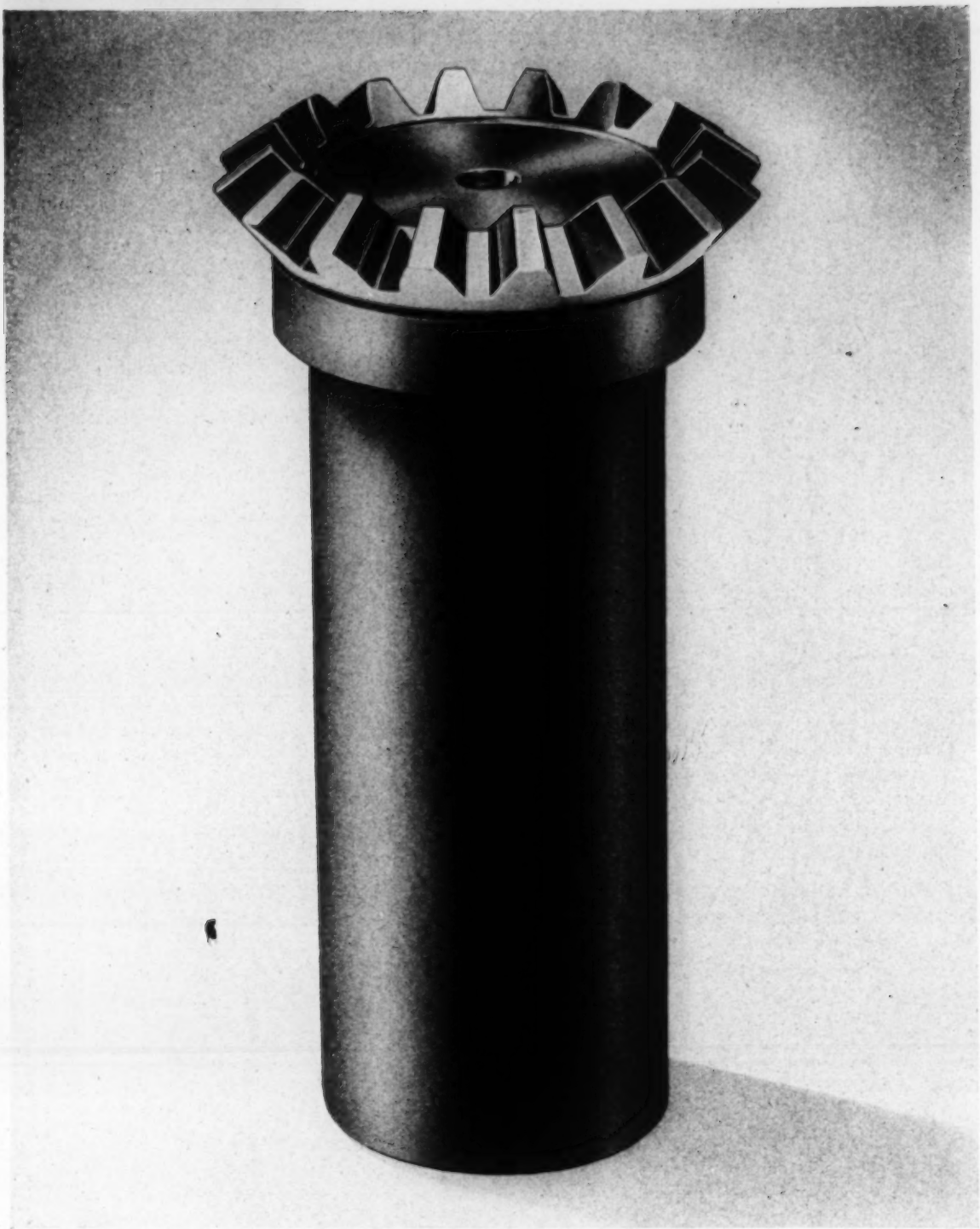
The employment procedure in use in hiring potential toolroom workers is much more painstaking than is customary. High school, vocational school, or equivalent school education is desired. If it is at all possible, the corporation prefers men with at least two years of college work. The entering procedure involves investigation and testing designed to discover applicants who are best suited for toolroom work. The preliminary interview is conducted by a company employee who is well-versed in machine work. After meeting the requirements of the preliminary interview, the applicant fills out the company's application blank. He is then referred to the Occupational Testing Department, where he is given the Otis test, Humm-Wadsworth, and other mechanical aptitude tests.

The Otis and Humm-Wadsworth tests are used for general intelligence. The testing for mechanical aptitude is done through the media of the MacQuarrie Test for Mechanical Aptitude and the Minnesota Rate of Manipulation Test. Whenever time permits during the testing period, the O'Conner-Wiggley Block Test is given. Those applicants accepted for employment are then examined by the company's physician, photographed, and fingerprinted. They are then assigned to the training school.

In the past the corporation has been able to adhere to the employment procedures as noted above. It is likely that in the near future the corporation may of necessity take from the production shop machine operators who have shown outstanding ability on their job and assign them to do work in the toolroom. It is possible that before assigning these workers they may be put through a short training period at the company school.

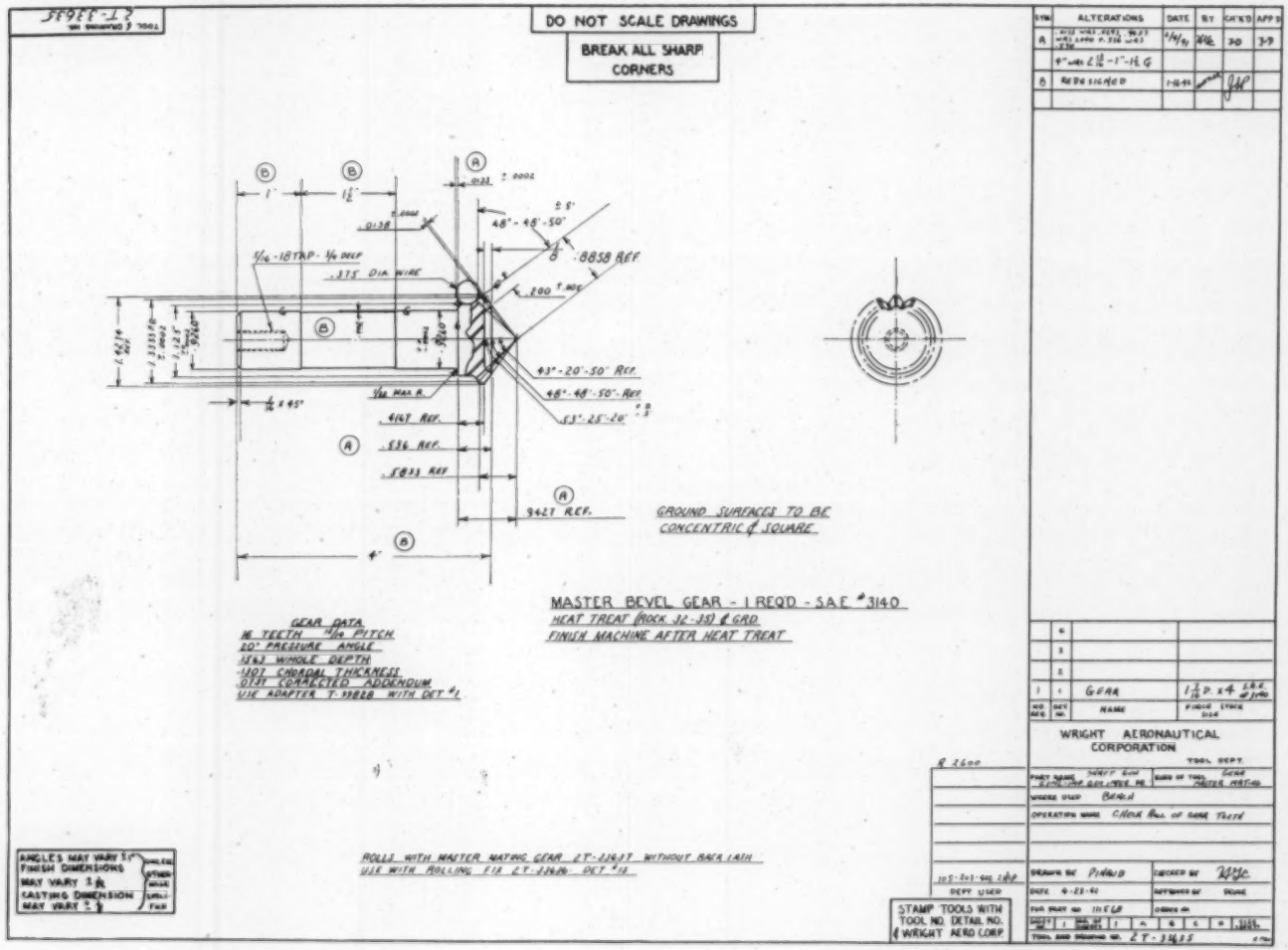
(Figures I–XII follow.)

Figure I.—Job Break-down



A master mating gear, which was made in the toolroom by utilizing the skills of specialty operators, learner-operators, and learners. The following figures depict the steps taken in processing it.

Figure 11.—Job Break-down



Blue print of the master mating gear.
This print shows tolerances which are common working tolerances for this toolroom.

Figure III.— Job Break-down



Assistant foreman and leadman of engine lathes looking over blueprint of tool. At this time the job is broken down into simple manipulative operations which can be done by the type of worker employed in this toolroom.

NOTE.—The assistant foreman (wearing coat) was hired by the corporation as a toolmaker before production was started and sent to the parent plant for training, after which he was upgraded to his present position. The leadman was hired as a lathe operator and then promoted to leadman.

Figure IV.— Job Break-down



The first step in the making of the tool. Rough turning on the engine lathe to a tolerance of $+0.05''$.

NOTE.—The operator is 18 years old. He entered the corporation's training school November 1, 1941, completed the instruction for Milling Machine and Engine Lathe, and started work in the toolroom three months later.

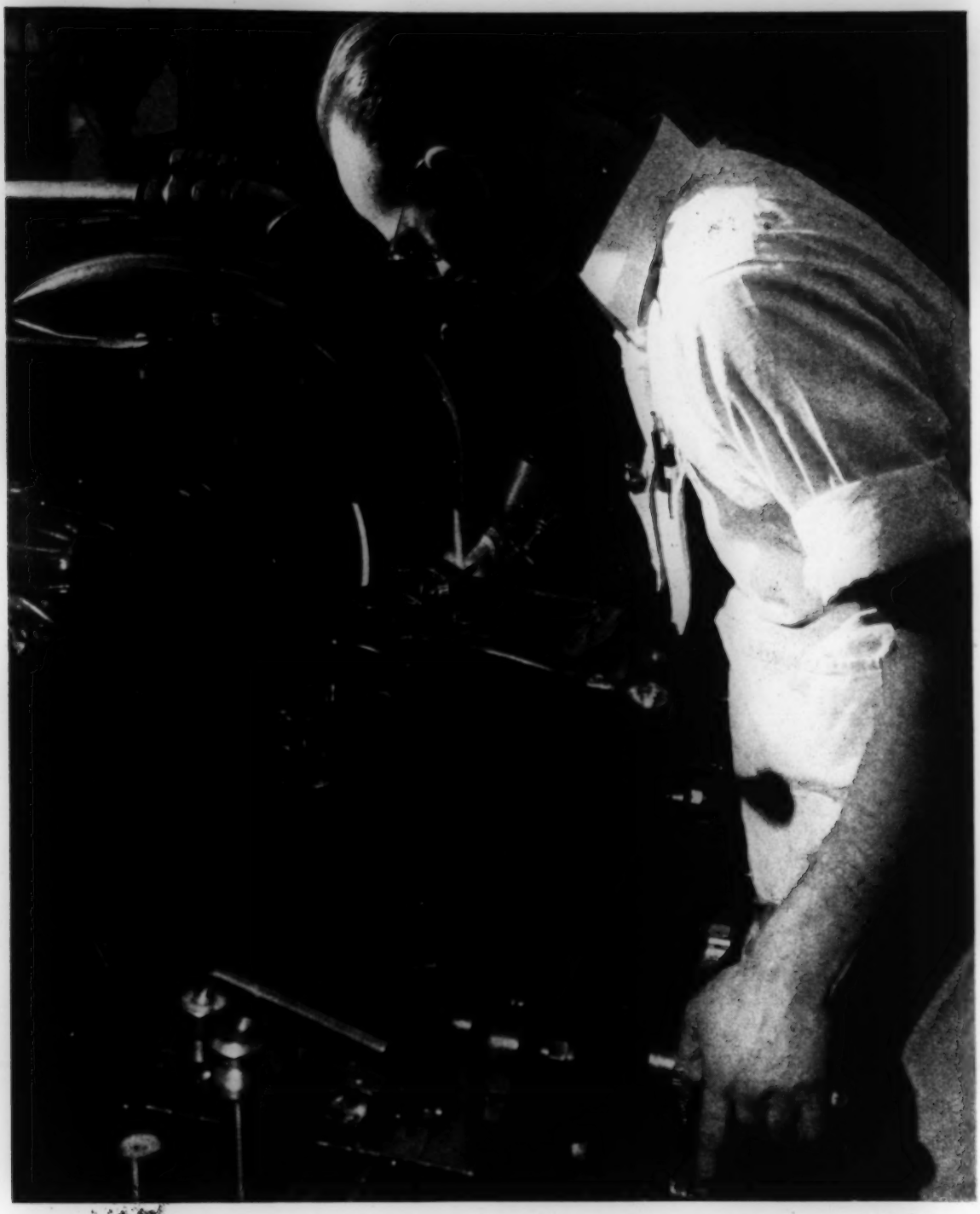
Figure V.—Job Break-down



The second step in the making of the tool. Finish turning on the engine lathe to allow for grinding.

NOTE.—The operator in the picture is 22 years old. He entered the corporation's pre-production training school August 18, 1941, completed the instruction for Milling Machine and Engine Lathe, and started work in the toolroom 13 weeks later.

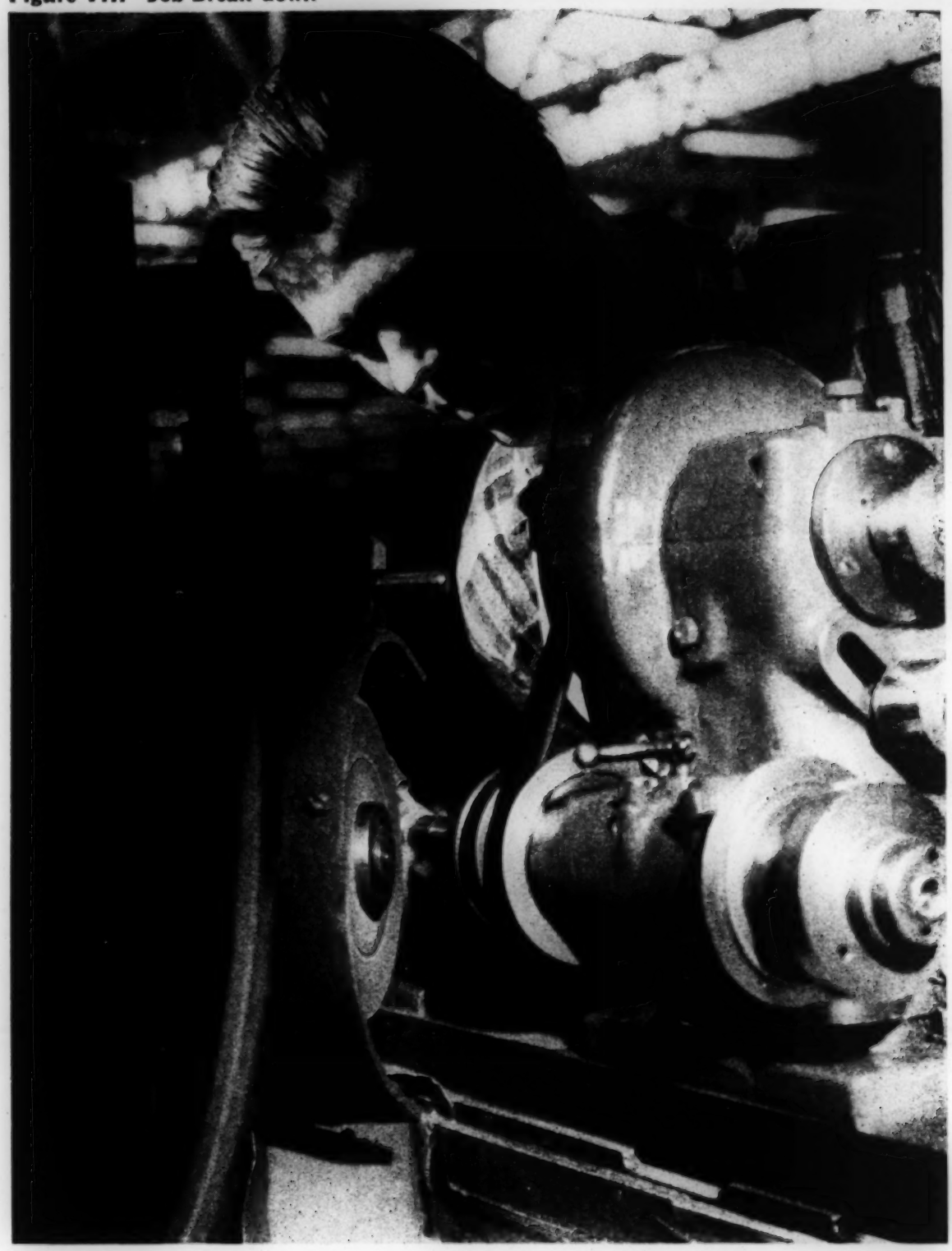
Figure VI.—Job Break-down



The third step in the making of the tool. Finish straight cylindrical grinding to a tolerance of $^{+0.0}_{-0.0002}$.

NOTE.—The operator in the picture is 24 years old. He entered the corporation's training school July 7, 1941, completed the instruction for Internal and External Grinding, and started work in the toolroom 11 weeks later.

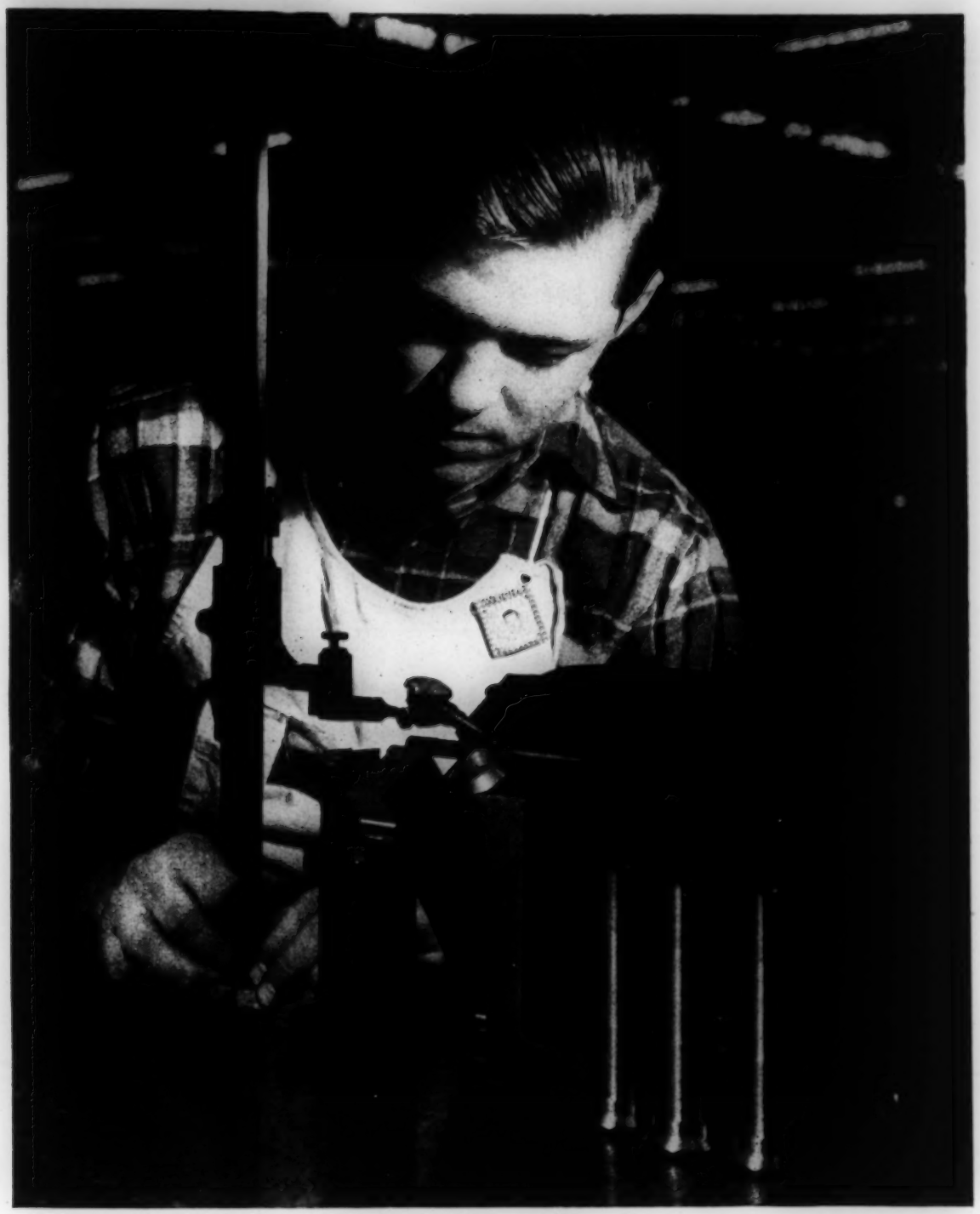
Figure VII.—Job Break-down



The fourth step in the making of the tool. Finish bevel cylindrical grinding to a tolerance of $\pm$ 5″ and $\begin{matrix}+.0\\-.5\end{matrix}$″.

NOTE.—The operator in the picture is 21 years old. He entered the corporation's training school April 28, 1941, completed the instruction for Internal and External Grinding, and started work in the toolroom three months later.

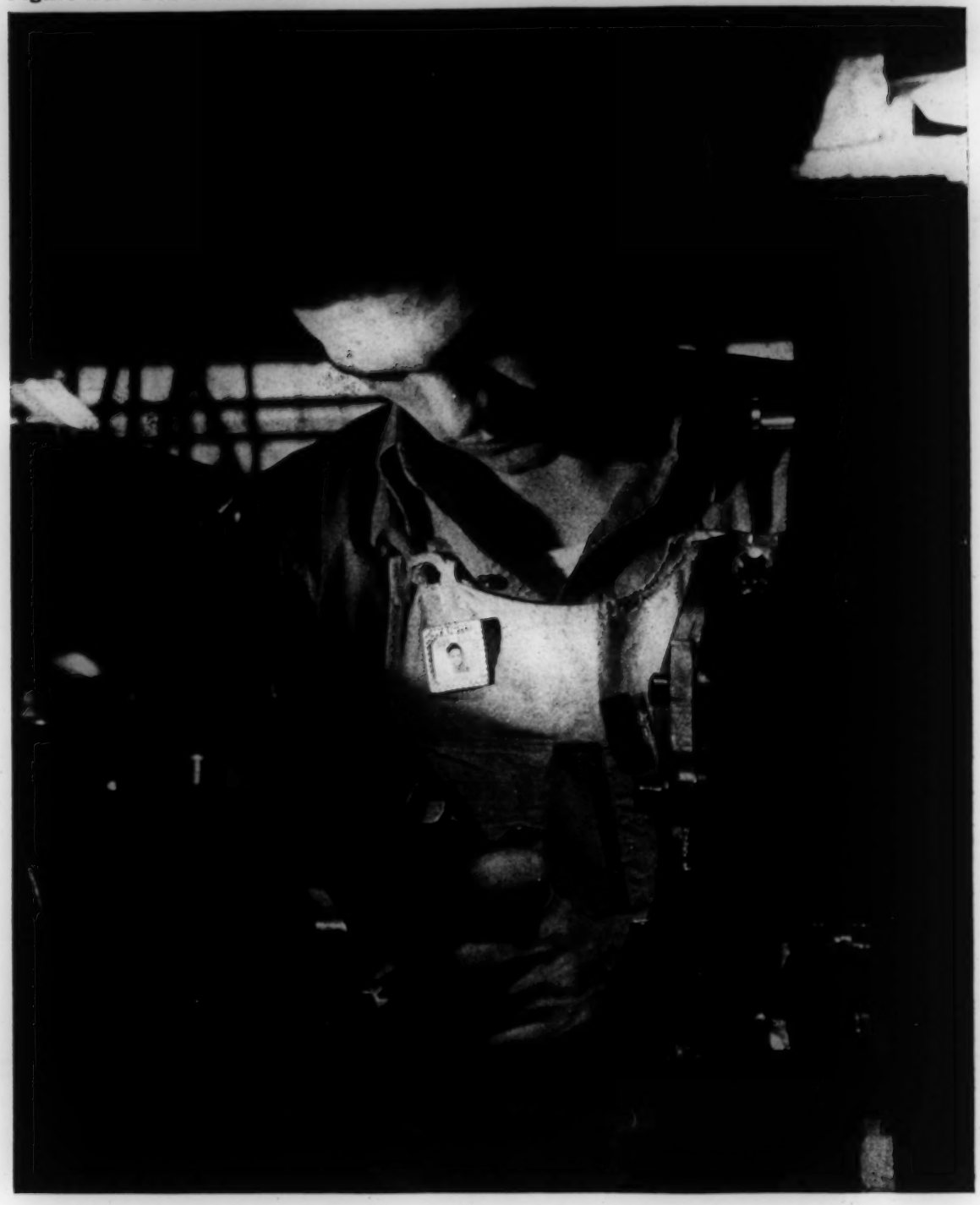
Figure VIII.—Job Break-down



The fifth step in the making of the tool. Checking finished part.

NOTE.—The operator in the picture is the same operator as shown in Figure VII.

Figure IX.—Job Break-down



The sixth step in the making of the tool. Cutting and checking teeth.

NOTE.—This step is done in the production shop, bevel gear line. The operator in the picture is 19 years old. He entered the corporation's training school September 10, 1941, completed the instruction for Production-Gear Cutting, and started work in the shop, bevel gear line, three weeks later.

Figures X.—Job Break-down

TIME STUDY DEPARTMENT

FORM NO. C-13-SM WRIGHT AERONAUTICAL ROUTING SHEET-CINTI. DIVISION

PART NO. NS - 1004 NAME GEAR CUTTING ARBOR ,.500 DIA. PART NO. NS - 1004

SHEET NO. 1 MODEL SCHOOL DATE JAN.24,1942

DEPT.	OPERATION NO.	OPERATION NAME	TYPE OF MACHINE	MACH. NO.	STD. TIME	SET UP TIME
		MATERIAL SPEC. - MACHINE STEEL - 2 11/16" DIAM.	SHOP COPY			
		BAR STOCK				
SCHOOL	10	CUT TO INDICATE LENGTH	HORIZ. MILL. MACHINE			
SCHOOL	20	FACE END - TURN - CENTER DRILL	L & S LATHE			
SCHOOL	30	FACE OPPOSITE END - TURN - CENTER DRILL	L & S LATHE			
SCHOOL	40	FINISH TURN	L & S LATHE			
SCHOOL	50	TURN TAPER	L & S LATHE			
SCHOOL	60	CHASE THREADS	L & S LATHE			
SCHOOL	70	HARDEN	OVEN			
SCHOOL	80	GRIND O.D.	EXT. GRINDER			
SCHOOL	90	GRIND TAPER O.D.	EXT. GRINDER			
SCHOOL	100	BURR AND BREAK SHARP EDGES	BENCH			
SCHOOL	110	WASH	TANK			
SCHOOL	120	INSPECT	BENCH			
		DELIVER TO FINISH STORES				

Figures X to X (L) illustrate the method used at the school in instruction for the making of a gear cutting arbor. The first figure is of the routing sheet upon which are listed all operations needed in processing. The figures following illustrate the successive steps in processing the part. This practice is typical of the method of training for all types of machines for which training is being given.

Figure X (A).—Job Break-down

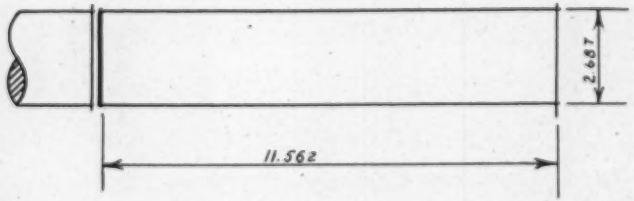
TOOLS RECORDED										

PART NO. NS-1004	PART NAME ARBOR - GEAR CUTTING 1.500			PART NO. NS-1004
DATE 1-24-42	MACHINE NAME HORIZONTAL MILLING MACH	MATERIAL - SPEC. NO.	FILE CL. J.G. 1-24-42	SHEET NO. 1
OPER. NAME	CUT TO INDICATED LENGTH		DEPT. NO.	OPER. NO 10

HOLD PART IN VISE
MILL AS PER SKETCH

TOOLS

TOOL NO.



DO NOT SCALE SKETCH

STANDARD OPERATION INSTRUCTION SHEET

PREPARED BY CRETORS

SKETCHED BY TAU

Figure X (B)—Job Break-down

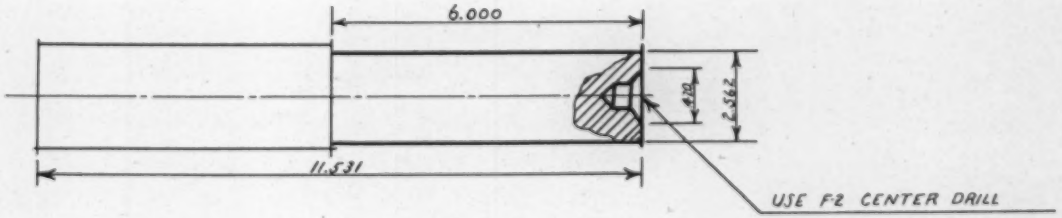
TOOLS RECORDED										

PART NO. NS-1004	PART NAME ARBOR-GEAR CUTTING 1.500			PART NO. NS-1004
DATE 1-24-42	MACHINE NAME LATHE	MATERIAL - SPEC. NO.	FILE CL. JG 1-24-42	SHEET NO. 2
OPER. NAME	FACE-END-TURN-CENTER DRILL		DEPT. NO. SCHOOL	OPER. NO. 20

HOLD PART IN CHUCK JAWS
TRUE UP
MACHINE AS PER SKETCH

TOOLS

TOOL NO.



DO NOT SCALE SKETCH

STANDARD OPERATION INSTRUCTION SHEET	PREPARED BY CRETORS	SKETCHED BY TAU

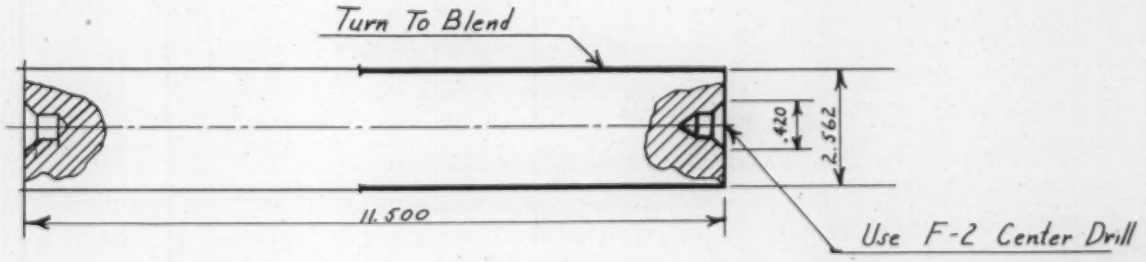
Figure X (C)—Job Break-down

TOOLS RECORDED										
PART NO. NS-1004	PART NAME ARBOR-GEAR CUTTING 1.500								PART NO. NS-1004	
DATE 1-24-42	MACHINE NAME LATHE			MATERIAL - SPEC. NO.			FILE CL. JG 1-24-42		SHEET NO 9	
OPER. NAME	FACE OPPOSITE END - TURN - CENTER DRILL					DEPT NO. SCHOOL			OPER. NO. 30	

HOLD PART IN CHUCK JAWS
JAWS ON 2.562 TURNED DIAM.
CHECK FOR TRUENESS
MACHINE AS PER SKETCH.

TOOLS

TOOL NO.



DO NOT SCALE SKETCH

STANDARD OPERATION INSTRUCTION SHEET

PREPARED BY CRETORS

SKETCHED BY TAU

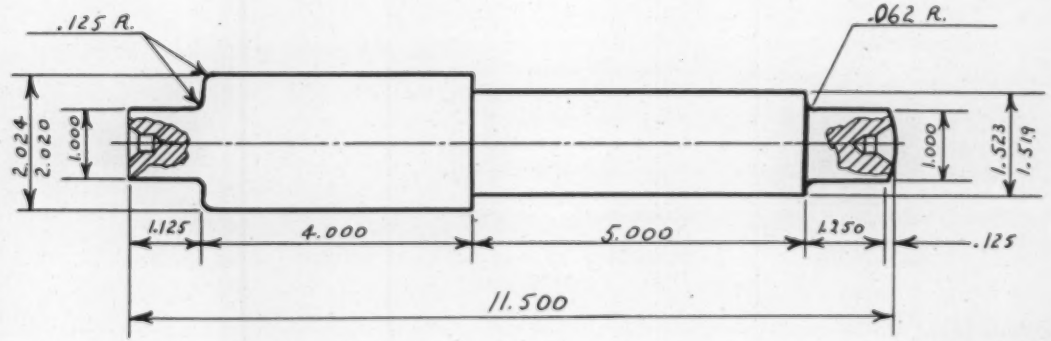
Figure X (D)—Job Break-down

TOOLS RECORDED										
PART NO. NS-1004	PART NAME ARBOR-GEAR CUTTING 1.500									PART NO. NS-1004
DATE 1-24-42	MACHINE NAME LATHE			MATERIAL - SPEC. NO.			FILE CL 1-24-42 JG			SHEET NO. 4
OPER. NAME	FINISH TURN						DEPT. NO. SCHOOL			OPER. NO. 40

HOLD BETWEEN CENTERS
INDICATE TO RUN TRUE
MACHINE AS PER SKETCH

TOOLS

TOOL NO.



DO NOT SCALE SKETCH

STANDARD OPERATION INSTRUCTION SHEET

PREPARED BY CRETORS

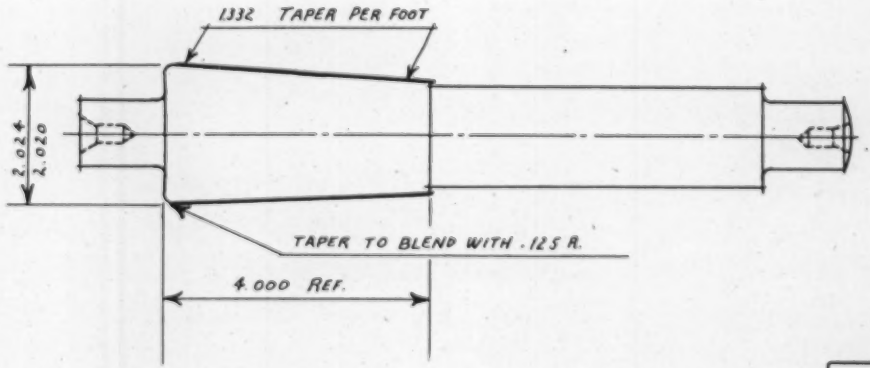
SKETCHED BY TAU

Figure X (E).—Job Break-down

TOOLS RECORDED										
PART NO. NS-1004	PART NAME ARBOR-GEAR CUTTING 1.500								PART NO. NS-1004	
DATE 1-24-42	MACHINE NAME LATHE			MATERIAL - SPEC. NO.			FILE CL. JG 1-24-42		SHEET NO. 5	
OPER. NAME TURN TAPER							DEPT. NO. SCHOOL		OPER. NO. 50	

HOLD BETWEEN CENTERS
SET TAIL STOCK TO TURN TAPER
MACHINE AS PER SKETCH.

TOOLS | TOOL NO.



DO NOT SCALE SKETCH

STANDARD OPERATION INSTRUCTION SHEET

PREPARED BY CRETORS | SKETCHED BY TAU

Figure X (F).—Job Break-down

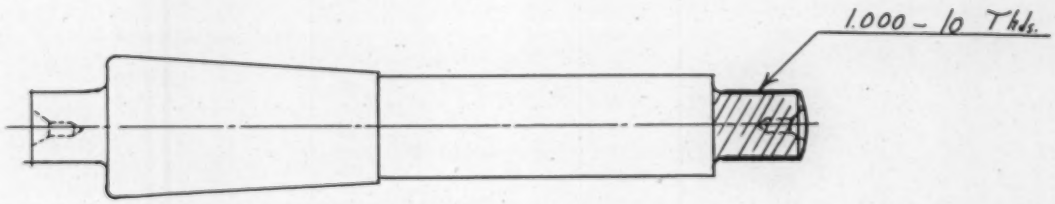
TOOLS RECORDED									

PART NO. NS-1004	PART NAME ARBOR-GEAR CUTTING 1.500		PART NO. NS-1004
DATE 1-24-42	MACHINE NAME LATHE	MATERIAL - SPEC. NO.	FILE CL. JG 1-24-42 / SHEET NO 6
OPER. NAME CHASE THREADS		DEPT. NO. SCHOOL	OPER. NO. 60

HOLD PART BETWEEN CENTERS
INDICATE TO RUN TRUE
MACHINE AS PER SKETCH

TOOLS

TOOL NO.



DO NOT SCALE SKETCH

STANDARD OPERATION INSTRUCTION SHEET

PREPARED BY CAETORS

SKETCHED BY SCHOTT

Figure X (G).—Job Break-down

59-A-40M

TIME STUDY

WRIGHT AERONAUTICAL CORPORATION
STANDARD OPERATION INSTRUCTION SHEET

TOOLS RECORDED									

PART NO. NS - 1004	PART NAME ARBOR - GEAR CUTTING 1.500 DIA.		PART NO. NS - 1004
DATE JAN.24,1942	MACHINE NAME OVEN	MATERIAL - SPEC. NO.	SHEET NO. 7
OPER. NAME HARDEN		DEPT. NO. SCHOOL	OPER. NO. 70

PACK HARDEN.

NOTE: THREADS MUST BE LEFT SOFT.

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Figure X (H).—Job Break-down

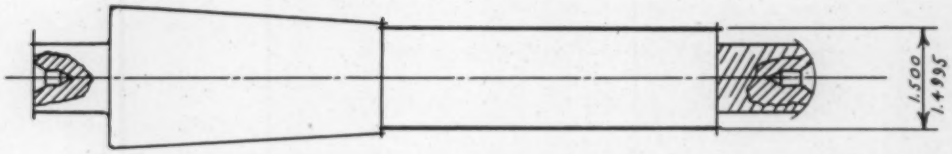
TOOLS RECORDED										

PART NO. NS-1004	PART NAME ARBOR-GEAR CUTTING			PART NO. N.S-1004
DATE 1-24-42	MACHINE NAME EXTERNAL GRINDER	MATERIAL-SPEC. NO.	FILE CLERK JG 1-24-42	SHEET NO. 8
OPER. NAME GRIND O.D.			DEPT. NO. SCHOOL	OPER. NO. 80

RUN BETWEEN CENTERS
GRIND AS PER SKETCH

TOOLS

TOOL NO.



DO NOT SCALE SKETCH.

STANDARD OPERATION INSTRUCTION SHEET	PREPARED BY CRETORS	SKETCHED BY TAU

484645—42——4

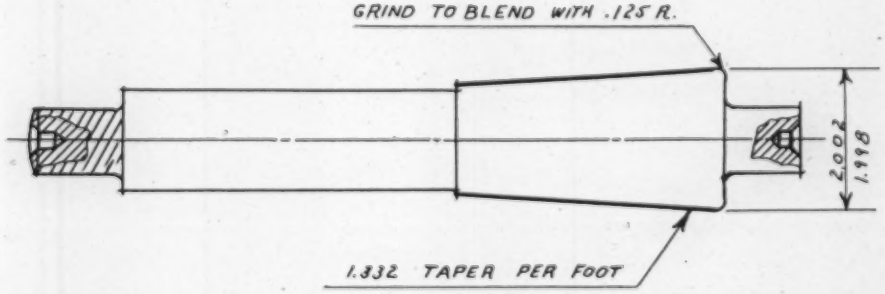
Figure X (I).—Job Break-down

TOOLS RECORDED										
PART NO. NS-1004	PART NAME ARBOR - GEAR CUTTING 1.500									PART NO. NS-1004
DATE 1-24-42	MACHINE NAME EXTERNAL GRINDER			MATERIAL - SPEC. NO.			FILE CLERK J.G. 1-24-42			SHEET NO. 9
OPER. NAME	GRIND TAPER O.D.						DEPT. NO. SCHOOL			OPER. NO. 90

RUN BETWEEN CENTERS
SET TABLE TO GRIND TAPER TO
SUIT FELLOWS GEAR SHAPER.

TOOLS

TOOL NO.



NOTE:
Grind Taper To Suit Fellows Gear Shaper.

DO NOT SCALE SKETCH

STANDARD OPERATION INSTRUCTION SHEET

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SKETCHED BY TAU

Figure X (J).—Job Break-down

TIME STUDY

FORM NC 1-SM

WRIGHT AERONAUTICAL C ‹PORATION - CINTI DIVISION

STANDARD OPERATION INSTRUCTION SHEET

SHOP COPY

TOOLS RECORDED			
PART NO. NS - 1004	PART NAME ARBOR - GEAR CUTTING 1.500 DIA.		PART NO. NS - 1004
DATE JAN.24,1942	MACHINE NAME BENCH	MATERIAL - SPEC. NO.	SHEET NO. 10
OPER. NAME BURR & BREAK SHARP EDGES		DEPT. NO. SCHOOL	OPER. NO. 100

BURR AND BREAK SHARP EDGES .010-.030 RAD.

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PREPARED BY SCHOTT

Figure X (K)—Job Break-down

TIME STUDY

FORM NO. 11-5M

WRIGHT AERONAUTICAL CORPORATION - CINTI DIVISION

STANDARD OPERATION INSTRUCTION SHEET

SHOP COPY

TOOLS RECORDED								

PART NO. NS. - 1004	PART NAME ARBOR - GEAR CUTTING 1.500 DIA.		PART NO. NS - 1004
DATE JAN. 24, 1942	MACHINE NAME TANK	MATERIAL - SPEC. NO.	SHEET NO. 11
OPER. NAME WASH		DEPT. NO. SCHOOL	OPER. NO. 110

WASH & CLEAN PART THOROUGHLY FOR INSPECTION.

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SCHOTT

Figure X (L).—Job Break-down

TIME STUDY

FORM NC 1-SM

WRIGHT AERONAUTICAL C ?PORATION - CINTI DIVISION

STANDARD OPERATION INSTRUCTION SHEET

SHOP COPY

TOOLS RECORDED								

PART NO. NS - 1004	PART NAME ARBOR - GEAR CUTTING 1.500 DIA.		PART NO. NS - 1004
DATE JAN.24,1942	MACHINE NAME BENCH	MATERIAL - SPEC. NO.	SHEET NO. 12
OPER. NAME INSPECT		DEPT. NO. SCHOOL	OPER. NO. 120

INSPECT 100% TO B/P		
DELIVER TO FINISH STORES		

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Figure XI

CLASSIFICATION RECORD OF TRAINEE

TO_____ DATE _____

NAME_____ NUMBER_____

AGE_____ HEIGHT_____ WEIGHT_____

GRADE: Related Instruction_____ SHOP_____

MACHINE_____ NUMBER of WEEKS_____

REMARKS: ATTITUDE_____ DEPENDABILITY_____

LEARNING ABILITY_____ CAREFUL WORKER_____

COOPERATION_____

INSTRUCTOR_____

Vrs Aero Corp
Instr. Div.
Form CH-147

Figure XII.—Job Break-down

WRIGHT AERONAUTICAL CORPORATION
TRAINING SCHOOL

INSTRUCTOR | SHOP RECORD | MACHINE

WEEK GROUP NO.	NAME & REMARKS	DAY	QUALITY OF WORK	SHOP SAFETY CARE AND USE OF TOOLS	ABILITY TO LEARN	DEPEND-ABILITY AND JUDGEMENT	ATTITUDE
		MON					
		TUE					
		WED					
		THU					
		FRI					
		MON					
		TUE					
		WED					
		THU					
		FRI					
		MON					
		TUE					
		WED					
		THU					
		FRI					
		MON					
		TUE					
		WED					
		THU					
		FRI					
		MON					
		TUE					
		WED					
		THU					
		FRI					
		MON					
		TUE					
		WED					
		THU					
		FRI					

NOTE: USE 1,2,3,4 FOR DAILY GRADE. SEE RATING SHEET FOR VALUES

Wri. Aero. Corp.
Cinti. Div.
Form CN-76

(Daily shop record of trainee)

Figure XIII.

RATING PLAN FOR TRAINEES
WRIGHT AERONAUTICAL CORPORATION

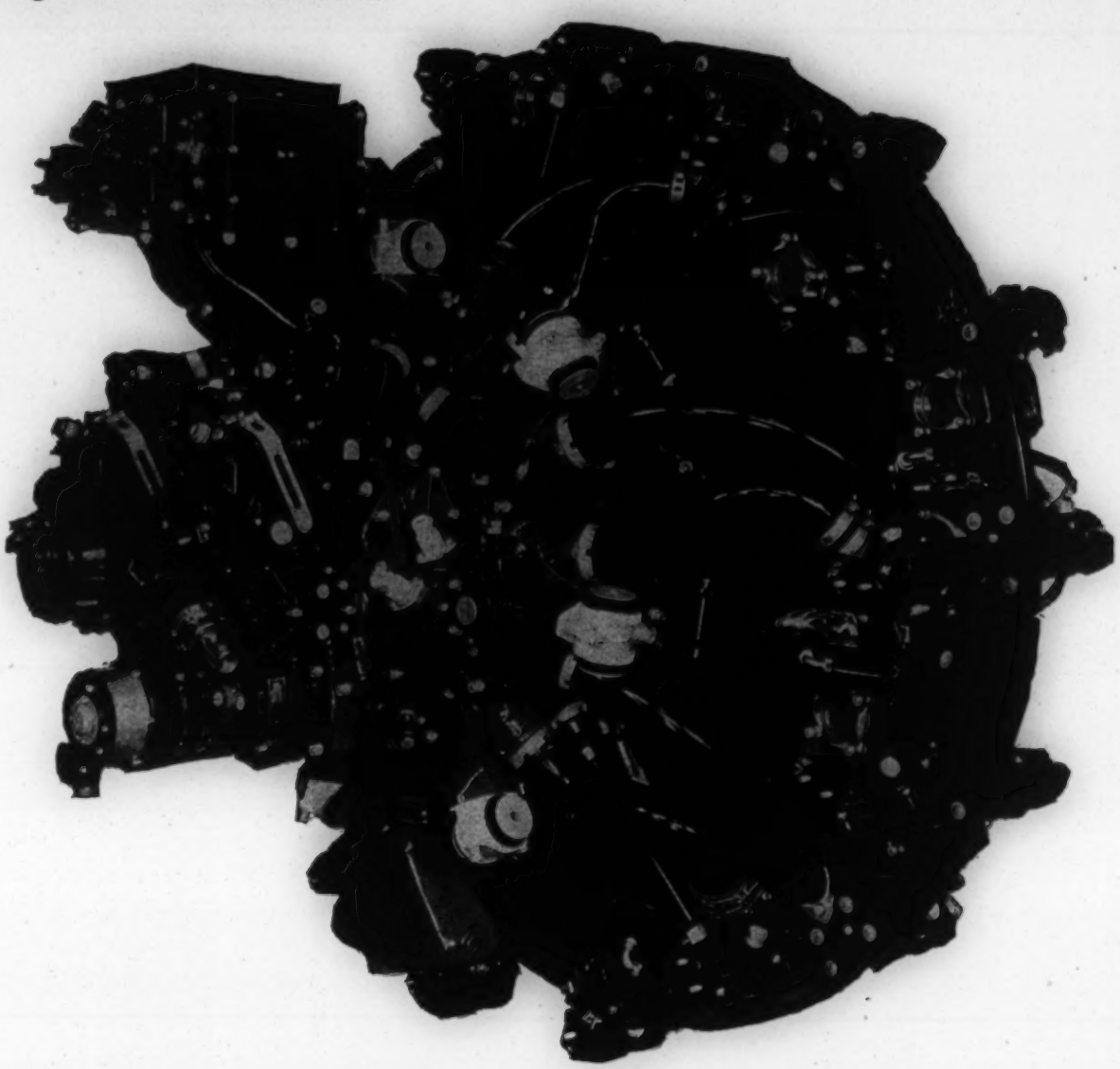
TRAINING SCHOOL — CINCINNATI DIVISION

	1. EXCELLENT 100 ⊕ 95 ⊖ 90	2. GOOD 90 ⊕ 85 ⊖ 80	3. FAIR 80 ⊕ 75 ⊖ 70	4. BELOW AVERAGE 70 ⊕ 65 ⊖ 60
QUALITY OF WORK	ONE WHO ALWAYS REPORTS MISTAKES AND WHOSE WORK CAN BE RELYED UPON TO BE ACCURATE IN EVERY RESPECT.	ONE WHOSE WORK CAN USUALLY BE RELYED UPON TO BE ACCURATE. SELDOM MAKES MISTAKES.	PRODUCES FAIR QUALITY OF WORK. USUALLY REPORTS ERRORS. FAIR CONCEPTION OF QUALITY.	SELDOM ACCURATE IN HIS WORK AND SELDOM REPORTS MISTAKES. APT TO MAKE MISTAKES. ERRORS DUE TO LACK OF INTEREST AND ATTENTION.
SHOP SAFETY, CARE AND USE OF TOOLS.	ONE WHO ALWAYS FOLLOWS SAFETY INSTRUCTION. ALWAYS KEEPS MACHINE AND TOOLS CLEAN. EXERCISES CARE IN HANDLING AND USING TOOLS.	ONE WHO USUALLY FOLLOWS INSTRUCTION. USES TOOLS AND TAKES MEASURMENTS WITH ACCURACY.	FREQUENTLY CONSIDERS SAFETY OF OTHERS. DOES NOT FULLY APPRECIATE THE VALUE OF USING TOOLS AND INSTRUMENTS.	ONE WHO DOES NOT CONSIDER THE SAFETY OF OTHERS. DOES NOT APPRECIATE THE VALUE OF USING TOOLS AND INSTRUMENTS. IGNORES INSTRUCTION.
ABILITY TO LEARN	ONE WHO IS HIGHLY INTELLIGENT. GRASPS INSTRUCTIONS QUICKLY. RETAINS THEM AND FOLLOWS THEM OUT. IS ABLE TO ADJUST HIMSELF QUICKLY. APPLIES NEW IDEAS.	ONE WHO IS INTELLIGENT, USUALLY GRASPS, RETAINS AND FOLLOWS INSTRUCTIONS. HE IS ABLE TO ADJUST HIMSELF. SIZES UP A SITUATION QUICKLY.	ONE WHO HAS FAIR INTELLIGENCE, BUT NEEDS MAXIMUM INSTRUCTION. DOES NOT READILY UNDERSTAND. SLOW IN SELF ADJUSTMENT.	ONE WHO NEEDS MAXIMUM INSTRUCTION AND DOES NOT GRASP OR RETAIN THEM POOR MEMORY. UNABLE TO ADJUST HIMSELF TO NEW MECHANICAL OPERATIONS.
DEPENDABILITY AND JUDGEMENT	ONE WHO IS NEVER ABSENT OR LATE ALWAYS FOLLOWS INSTRUCTIONS AND HAS COMPLETE CONFIDENCE IN HIMSELF. THE MACHINE AND HIS INSTRUCTOR. ONE WHO APPLIES GOOD JUDGEMENT AT ALL TIMES. IS HONEST AND CAN SHOULDER RESPONSIBILITY.	ONE WHO IS USUALLY PRESENT AND ON TIME. USUALLY FOLLOWS INSTRUCTIONS AND HAS CONFIDENCE IN HIMSELF, THE MACHINE, AND HIS INSTRUCTOR. ONE WHO APPLIES GOOD JUDGEMENT, IS HONEST AND CAN SHOULDER RESPONSIBILITY.	ONE WHO IS OCCASIONALLY ABSENT. UNABLE TO CARRY OUT COMPLETE INSTRUCTIONS-NEEDS ADDITIONAL INFORMATION AND FOLLOW UP. HESITATES — NOT COMPLETE CONFIDENCE IN SELF. HE IS HONEST AND HAS FAIR JUDGEMENT.	ONE WHO HAS LITTLE CONFIDENCE IN HIMSELF, MACHINE AND HIS INSTRUCTOR. REQUIRES FREQUENT FOLLOW-UP EVEN ON ROUTINE WORK. UNNECESSARY ABSENCE. LITTLE MECHANICAL ABILITY.
ATTITUDE	ONE WHO FITS IN WITH THE GROUP-IS ALWAYS BUSY, AND A GOOD EXAMPLE AT ALL TIMES. WILLING TO LEARN AND VERY COOPERATIVE. PERSONAL INTEREST IN WORK. OBEYS AND RESPECTS COMPANY POLICIES AT ALL TIMES.	ONE WHO FITS IN WITH THE GROUP, IS USUALLY BUSY, AND AN EXAMPLE TO OTHERS. OBEYS COMPANY POLICIES. PERSONAL INTEREST IN WORK.	DOES NOT LIKE TO USE NEW IDEAS. DEPENDS ON OTHERS TO SOLVE HIS PROBLEMS, DOES NOT ALWAYS HAVE PERSONAL INTEREST IN WORK.	HAS CRITICAL ATTITUDE, IS CARELESS AND OPENLY DISREGARDS INSTRUCTION. OCCASIONAL INTEREST IN WORK. ACCEPTS OCCASIONAL SUGGESTIONS. HAS LITTLE PERSONAL INITIATIVE.

Wright Aeronautical Corporation Cincinnati Div. Form No. CK-B

(Rating plan used in evaluating ability of trainee)

Figure XIV.—Job Break-down



Write Cyclone 14. The type of engine produced at a Wright Aeronautical Corporation plant.

National Acme Company

In the manufacture of automatic machine tools and precision threading tools, highly skilled workmanship is an absolute necessity. When production of these is carried on for 24 hours a day, it becomes increasingly difficult to adhere to procedures and practices used during peacetime production.

The National Acme Company has been making automatic machine tools since 1900. This company has kept pace with the increased demand for these machines and in addition to that is manufacturing matériel for the armed forces.

The company has had a training program in force for some time, which has contributed much to its ability to man all of its machines on a 24-hour basis for war production output.

This is how the National Acme tackles the problem of:

1. Making tools.
2. Maintenance and repair of machines.

Making Tools

The toolroom employs approximately 300 workers. Of this number, approximately 2 percent are on the supervisory staff. Toolmakers account for 7 percent; specialty operators (men permanently assigned to a specific machine or who have been rotated from one machine to another) account for 73 percent of the total working staff. Learners account for the remaining 18 percent.

The toolroom makes all the tools, jigs, and fixtures used in the operation of hundreds of machines employed in the manufacture of war products and other parts within the plant. It also makes up the tools required for the new machines that the company makes. Work is on a 24-hour basis, with three shifts in operation. There is a foreman in charge of the toolroom and a supervisor on each shift in charge of various batteries of machines.

Job Break-down, Training and Fitting in the New Worker, and Job Planning, are the three steps in making tools.

Job Break-down.

All work for the toolroom comes directly to the foreman who analyzes the job and breaks it down into the various operations that are required for processing. He then assigns to each supervisor in charge of a battery of machines the work required for the part that is to be done on those machines. This process of analyzing the job into simple operations in some instances may be recorded on paper with freehand sketches made up by the foreman. If the part to be processed at the various machines is not too complicated, verbal information is sufficient. The supervisor is responsible for passing this work out to the specialty operators or learners, according to the required finish of the part and the ability of the worker. After the various parts are machined they are returned to the bench where a toolmaker inspects, fits and assembles, according to what is required. In this manner the toolmaker spends all of his time on work requiring his highest skills, while the specialty operators and learners do the major portion of processing.

Training and Fitting in the New Worker.

The company has been able to recruit its workers for the toolroom from the graduates of the technical and vocational high schools in the Cleveland area, or those who have completed the machine course in the war production training program under the National Youth Administration or the U. S. Office of Education. Many come into the toolroom with working knowledge of micrometers, blueprint reading, lathe, shaper, and grinder operations as applied to the machine industry. Those with less training are generally assigned to routine bench work involving little skill, such as removing burrs, tapping holes, rough filing, etc. In this way they become acquainted with toolroom

procedure and afford the foreman or supervisor an opportunity to judge their ability. After a learner has been on bench work for a little while, he is assigned to a machine. Time spent on bench work varies with the demand for machine operation and with the ability of the learner.

When the learner is assigned to a machine he comes directly under the supervisor in charge of the battery of machines. The learner begins to operate the machine doing rough work, and, by the use of the job break-down procedure, within a short time he is able to advance to fine or precision work requiring a close tolerance. Whenever the learner is assigned a job involving machine manipulations or tolerances that are new to him the supervisor is always on hand to instruct and to make sure that the learner is able to perform the work before permitting him to go on.

After the learner has become proficient in the operation of one machine he is transferred to another and the same process of training is repeated. The learner progresses just as fast as his ability permits. By this system the company finds that in about two years many of the workers more adept in the toolroom will have had all-round training.

In some instances when a learner has expressed a desire to remain on one machine or has been tried out on others and has not been able to make the grade, he may be permanently assigned to the one machine on which he started the training.

Job Planning.

Wherever full machine utilization is carried on for 24 hours a day, the problem arises of finishing a piece of work started on the previous shift. This has been successfully solved in this toolroom by requesting each worker to report 10 minutes before starting time to find out what is being processed at his working station. An additional aid is by means of expediters or pushers who keep track of the parts being processed, moving the parts from one machine to another after each machine function. At the end of each shift these expediters or pushers make a list of parts which are being processed or which should be processed and the machines which are being used or are to be used. This information is useful to the supervisor in coordinating production for the various shifts.

Maintenance and Repair of Machines

Machines must be kept in good operating condition for any type of continuous production. The Maintenance and Repair of Machines Section rebuilds, repairs, and maintains all of the machines that are in use. Whenever machine parts are needed that are not easily obtainable, this department makes them in its own shop, in which are included all types of machines needed for machine-tool production.

The total working force of this section is approximately 50 workers. Eight percent of this number are classified as supervisors, 38 percent are classified as all-round mechanics, 28 percent are classified as specialty operators, and 26 percent are classified as learners.

Doing the Job.

This work has been separated into two sections:

(A) Maintenance. Workers are required to be all-round mechanics. These men are able to diagnose machine troubles, assemble machines, know what parts have to be repaired or made in order to put the machine back in service, inspect new or rebuilt machine parts, and test machines in production.

(B) Rebuilding or making machine parts. The all-round mechanic as noted in (A) decides whether the part or parts of machines undergoing repairs have to be repaired or made. He then passes this information on to his foreman. This may be done either verbally or in written form that is accompanied by a free-hand sketch. The foreman then breaks the job down into machine operations and assigns the work to the necessary specialty operators or learners, depending upon the work to be done and the ability of the worker. When the parts are rebuilt or made, they are given to the all-round mechanic, who assembles them into the machine.

During this time, the all-round mechanic is then free to devote his time to working on other machines in need of servicing. A typical example of how this practice is put into actual use follows.

The production foreman of lathes reports that the horizontal automatic feed of a 10-inch lathe

Figure XV



The all-round mechanic and helper in front of the machine which has broken down (lathe). The 'all-round' mechanic is pointing to the part of the machine which has caused the breakdown.

Figure XVI



The all-round mechanic holding part (friction clutch) that caused trouble and pointing out to helper necessary replacements.

Figure XVII



Part being made in shop by specialty operator.

Figure XVIII



The repaired machine being tested by the all-round mechanic, the helper looking on.

in his department will not work when the automatic screw is tightened. This report comes to the foreman of the Maintenance and Repair Section, either in verbal form or on a written order. If in verbal form, the foreman of the Maintenance and Repair Section writes out an order for repair of the machine immediately.

The all-round mechanic is given the work order and with his helper (who is classified as a learner) goes to the department where the breakdown is. By use of the following methods the all-round mechanic diagnoses the trouble, while the helper looks on and assists in every way possible.

1. From previous experience (trade judgment) he is able to determine what is wrong immediately; or
2. By process of elimination—

(*a*) trying to move carriage by hand feed; if this is possible, indicates that the trouble lies with the automatic clutching device.

(*b*) seeing if horizontal feed screw is revolving.

After the trouble is located (automatic clutching device), the all-round mechanic decides what repairs are necessary. It is found necessary to disassemble apron and remove clutch. This work is generally done by the helper with the assistance of the all-round mechanic. After the apron has been disassembled the all-round mechanic examines the friction clutch and decides that a new one is needed, explaining to the helper the reasons why. During all this time he is passing on information which will be useful to the helper in solving the same problem at some future time.

The all-round mechanic gives to the foreman of the Maintenance and Repair Section a report on what is wrong with the machine. If the part is obtainable from stock, it is immediately ordered and the lathe reassembled and tested by the all-round mechanic.

If the part is not obtainable from stock, it is made in the shop of the Maintenance and Repair Section, following the procedure as noted in Section B.

The new part is then given to the all-round mechanic, who assembles the lathe and tests it with the assistance of the helper.

The steps taken in the repair of this lathe are illustrated in figures XV to XVIII, inclusive.

Training and Fitting in the New Worker.

New workers for this section are recruited in most cases from the same source as those for the toolroom and the training that is given to the learner in the operation of a machine is the same as that which is used in the making of tools. In a few instances workers who have had training as automobile mechanics have been hired for this section. It has been found that men with this training are able to fit in with very little trouble. The new worker or learner is assigned to the operation of a machine under the supervision of a supervisor who has charge of all learners in this department. After a learner has become competent in the operation of one machine, he is transferred to another to be taught the skills involved in the operation of this one. As in the toolroom, the worker may be left on a specific machine.

After training on the operation of the various machines in this section, the worker is usually assigned as a helper to an all-round mechanic to assist him in his duties. In this manner the training started on machine operation is continued in the maintenance and repair of machines.

In some instances, depending upon the worker's aptitude, the procedure in this department has been to assign him as helper to an all-round mechanic before training starts on the operation of a machine. The new worker is brought into the shop of this section whenever the opportunity arises, or when in the opinion of the all-round mechanic training is necessary on the operation of the various machines.

Thompson Aircraft Products Corporation

Like other corporations, Thompson Aircraft Products has had to increase its working force many times in order to man its plants properly.

Its products are airplane engine parts which must be held to a very close tolerance. It therefore follows that tools needed must be held to a XX tolerance.

In order to man its new plant it has been necessary to hire thousands of unskilled workers and train them. The program for the production line was carried over from the training given at the other plants of the corporation.

The practice of job break-down and procedure of training for the toolroom had to be evolved as workmen were hired. This practice and procedure are showing excellent results in enabling this vital war organization to break all records for production.

The toolroom of this corporation has over 400 workers. Approximately 80 percent of this number are classified as specialty operators. The rest of the staff includes the supervisors, toolmakers, and apprentices.

This survey of training practices at Thompson covers Job Break-down, Training, Upgrading of the Worker, and Employment Procedure.

Job Break-down

All work for the toolroom comes to the foreman in charge. The toolroom is so set up that the major portion of the work is done by specialty operators and learners and it is necessary that each job be broken down into simple operations so that these workers may be able to do the necessary work. It is the foreman's responsibility to break down each job and assign work to the leadmen of the various machines. According to the difficulty of the work involved in processing the tool, the break-down may be verbal, or in written form accompanied by a free-hand sketch. In this way full utilization is made of the skills of each worker in the toolroom.

Training

Training on the job (direct induction) is used at this plant for training of toolroom workers. New workers are given 5 hours of instruction before being assigned to the toolroom. The topics covered are:

(*a*) The Use of the Common Scale Micrometer and Decimal Equivalents.
(*b*) Elementary Blueprint Reading.
(*c*) Manufacturing Standards.
(*d*) Test on the above subjects.
(*e*) Lecture on company policies, regulations, use of time and trailer cards, bonus system, shop conduct, safety, etc.

It can be seen that the new worker is given a quick but well-rounded foundation in preparation for employment.

The new worker is put in the toolroom under the direct supervision of a shop instructor (6 to 12 learners to one instructor). At this time the instructor acquaints the new worker with the operation of the particular machine that he is to operate. This procedure is illustrated in figures XIX and XX. One entire day is spent on this type of instruction. The next day the learner is placed on the machine which he will operate from that time on and is assigned regular work to do. He is given such assistance as may be necessary from the shop instructor and the supervisor.

It has been found from experience that it is better for the shop instructor and supervisor to work in close cooperation to help the new worker master the necessary skills. The new worker is given such work to do as his ability warrants. As his skills increase, he is given more advanced work.

Instruction on the operation of a specific machine is continued until such time as the shop instructor and supervisor feel that the new

worker is competent to handle his own machine without any direct assistance. One important practice of this company is not to transfer a worker to another machine after he has attained the necessary skills for the operation of one. In this manner proper and full utilization of skills learned for the operation of one machine is made.

Classroom sessions are held weekly, consisting of one hour of any one day designated by the Training Department. These sessions are held after regular working hours and the worker is compensated for this time. The training period for toolroom workers has been set for 17 weeks.

The introduction of shop instructors into the toolroom to aid in the training of learners has decreased the amount of classroom instruction on machine operation principles. Therefore, practically all of the time spent in the classroom is devoted to related work. An outline of instructional topics covered during these sessions is listed below:

Shop Practice	*Shop Math*
1. Precision Tools	1. Fractions
2. Mechanical Drawing Standards	2. Multiplication of Fractions
3. Blueprint Reading	3. Decimals
4. Manufacturing Standards	4. Checking Multiplication and Division by excess of nines
5. Gauging Methods	5. Transportation of Formulae
6. Screw Thread Standards	6. Circumferences, Areas and Volumes
7. Screw Thread Problems	7. Geometry
8. Materials	8. Pythagorean Theorem
9. Heat Treatment	9. Introduction to Trigonometry
10. Hardness Testing	10. Interpolation
11. Machinability of Materials	11. Right Angle Problems
12. Theory of Single Point Tools	12. Dovetails
13. Drills and Reamers	13. Chordal Distances
14. Test on Shop Practices	14. Taper Problems
15. Abrasives and Bonds	15. Test on Shop Math
16. Theory of Grinding	
17. Wheel Grading	

From previous experience, this corporation has found that the new worker has been able to produce sufficient productive work during the training period to equalize the costs of training. After two months in the toolroom he is put directly on the toolroom pay-roll. During the first 2 months of training, the entire costs of the new worker such as salary, material used, and equipment costs is charged directly to the training program. All production work put out by the learner during this period of training is credited to the training program.

Upgrading of the Worker

A definite upgrading policy has been established by the company for workers being trained as specialty operators in the toolroom. The advance in classification and compensation is according to his ability. The corporation feels that after 4 months in the toolroom the worker should have advanced to the classification of specialty operator.

Employment Procedure

Before employment by the corporation, applicants are given a series of tests. The tests are composed of seven parts:

Test	*Interpretation*
A Mental Alertness.	The ability the individual has to think in mechanical terms and to learn the average job quickly and easily.
B Background in Science.	The extent of training he has had in basic mathematical operations and in the fundamentals of general science.
C Personal Characteristics.	Will he be well liked by the other workers; will they get along with him and give him their cooperation?
D Interest in Factory.	The extent to which his interests in factory work and factory conditions check with the employees who are successful workers.
E Emotional Stability.	Degree of susceptibility to emotional appeal and the extent of emotional unbalance and feeling of inferiority.
F Ambition and Drive.	Will he do his best? Is he willing to do his share of the work well and faithfully?
G Mechanical Coordination.	Ability to use his hands and arms in complex movements easily and nimbly.

From previous results obtained in these tests the people who make the high grades in A, B, and G have been found to be best fitted for the toolroom work. The corporation has therefore followed the practice of assigning these to the toolroom.

(Figures XIX–XXI follow.)

Figure XIX



Shop instructor instructing (by demonstration) machine adjustment to new worker.

Figure XX



New worker adjusting machine under supervision of shop instructor.

The General Electric Company

As long ago as 1940 it became apparent to the General Electric Company that it would be faced with a shortage of toolmakers. The apprenticeship system in use at the plant for more than 40 years could not be counted upon to graduate enough workers to meet the anticipated needs. At that time the company planned to greatly expand its practice of training specialty operators to perform many toolroom operations and thus relieve the toolmaker for more important ones.

This survey was made in the toolroom of a unit having approximately 375 workers. Of this number, 60 percent are specialty operators and the remaining 40 percent are toolmakers and apprentices.

This percentage and classification of workers engaged in toolroom work are typical throughout the toolrooms of other units.

Analysis has been made of Job Break-down, Training, and Hiring and Upgrading Procedures.

Job Break-down

Making of a Die.

As an example of the utilization of specialty operators in the making of an intricate die, Figure XXII shows the break-down of operations required in processing. This chart was prepared by the Planning Department. The same method of making up job break-down sheets is followed for every part that is to be made. On the break-down sheet notation has been made of the type of worker used: i. e., toolmaker or specialty operator. In some instances it was found that apprentices have been used to do some of the work delegated to the toolmaker but since apprentices are on a long term training program they have been classified under toolmakers.

Of a total of 643 hours required in processing this die, an estimated 532 job hours were assigned to the specialty operators and an estimated 111 job hours were assigned to workers with toolmaking skill.

Figure XXIII shows the blueprint of the part to be punched. A picture of the finished die is shown in Figure XXI.

Repairing a Drill Jig.

Within the toolroom of each specific unit there is set up a division which repairs all tools. The drill jig, used to illustrate any other tool in need of repairs, is sent to the foreman in charge of the repair division. Figure XXIV illustrates a properly filled form accompanying the drill jig.

To be able to use the drill jig again new bushings are needed. The foreman of this repair division assigns the job to a toolmaker. This skilled worker breaks the job down into as many operations as possible, so that specialty operators may be able to do most of the processing of the new parts. This break-down may be verbal or written, accompanied by a free-hand sketch. Following is a specific example of how this job of repairing a drill jig is broken down:

Toolmaker makes free-hand sketch of bushing.

1. Drill and ream to size and cut off to length.
2. Turn O. D. on fly arbor.
3. Harden.
4. Insert bushing and finish hole by lapping or honing. These operations are based on the use of oil or air hardening steel.

Operations No. 1 and 2 are assigned to and done by specialty operators. Operation 4 is done either by the toolmaker or by an apprentice who has been assigned to the toolmaker.

Training

Two years ago the company found that at the most it would take 5 or 6 weeks to train a specialty operator to carry on simple processing.

In another survey conducted at the same time

it was found that there were some machines in the company's plant which were idle some part of the day. Men were therefore hired as learners and assigned to these machines under the guidance of specialty operators. After the men had received training in the operation of the machine they were then given definite assignments on a similar machine in various toolrooms of the plant.

As the work increased at the plant fewer machines were available. Until a year and a half ago formal training for machine operators was centered in the apprentice school, given when the school was not in use. During this time approximately 700 workers have received training. At the present time 50 workers are in training. Approximately another 500 workers have been trained directly on the job in the 17 specific units at this plant.

This plant has two types of training for specialty operators:

1. Pre-production training.
2. Training on the Job (direct induction).

Both of these methods have been used successfully in partially overcoming the shortage of workers in the toolroom. In both instances training is given on the machine which the learner will operate when he is assigned to productive work.

Pre-production Training.

This training is done in the company school and lasts 5 or 6 weeks. The learner is assigned to a specific machine for the entire period of training. For every 10 learners there is one instructor who has been assigned to the school from the plant.

The instruction has been broken down into necessary manipulative operations through the medium of blueprints of projects. The finished projects are not used by the company in the making of their products. Blueprints of these projects are arranged in sequence and each requires the attainment of new skills built upon the acquisition of skills learned through the former blueprint.

Training on the Job (direct induction).

In training directly on the job the variable factor is the ability of the learner to absorb and the instructor to teach. Under normal conditions this training will take from 4 to 6 weeks. During this period all related work, including blueprint reading, is given directly on the job. It is obvious, therefore, that just the training for the use of that one specific machine is all that can be given.

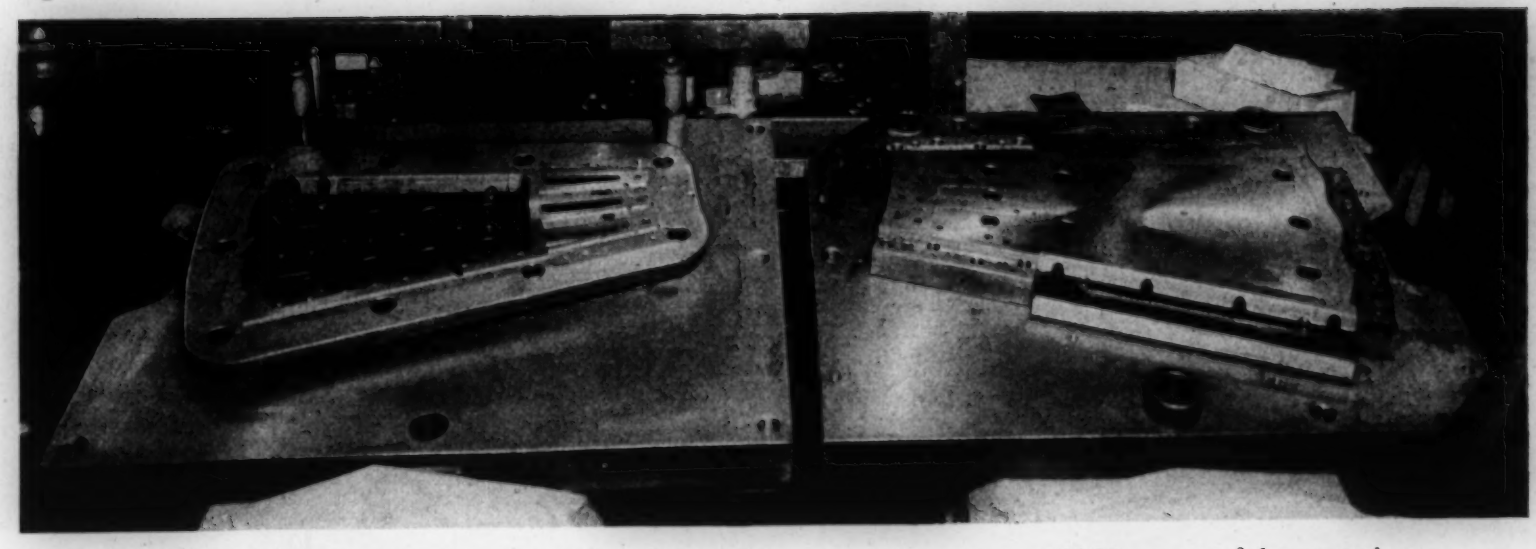
For the duration of his training the learner is assigned to a machine under the direct supervision of an experienced specialty operator. After the learner is able to produce on his own he may be assigned to a different machine of the same type or to another shift to operate the same machine.

Employment and Upgrading Procedures

For pay-roll classification as learners for both types of training, the company has hired men between the ages of 21 and 30. In a few instances men over 30 have been hired. The new workers who are to be given pre-induction training are interviewed by the supervisor of training before being employed. Workers who are to be given direct induction training are interviewed by the general foreman of the unit in which they are to work. These interviews are in addition to that given to the new worker before he is hired by the Personnel Division.

After a learner has begun to produce work he is classified as a Class C operator. The upgrading from Class C operator to Class B operator to Class A operator (who is generally recognized as an experienced specialty operator) depends entirely upon the ability of the worker. Workers hired in both types of training (pre-induction and training on the job) and all other workers are encouraged to enroll in supplementary classes given by the public vocational school so that they may be better equipped for their jobs.

Figure XXI



A complicated die made in the toolroom of the General Electric Co. Specialty operators did 80 percent of the processing.

Figure XXII

Division OFFICE

Sheet No. 1 Job No. 5120

Part OCOMB DIE 592505 1-1

Same As SO. 79-018-444

Drwg P.592505 M-1 Sh W-993556 Date 6-21 SO 79-018-489

Pt	Qty	Gr	Operation	Est Hrs	Remarks
		89	Make Section & Mat List	26	
		89	Make All Templates	30	
1	1	89	As'm	240	Toolmaker-Final Assembly
3/4	188		Top & Bottom Holders		
		101	Re-Grind Top & Bot	4	Blanchard Grinder Operator
		89	Dr & Ream for Guide Posts Bushings	7	As'ts Toolmaker & Toolmaker-Final Assembly
4	1	101	O.S. Stripper) Re-Grind	1	Blanchard Grinder Operator
		89	Fit For Saw On Da-All	4	Toolmaker
		87	Saw & File Comp (Da-All)	12	Da-All Operator
		89	Lay-Dark Bore Saw & Dow	4	Asst Toolmaker & Jig-Bore Press Operator
5	1	101	I.S. Stripper) Re-Grind	5	Blanchard Grinder Operator
		89	Fit For Saw On Da-All	4	Toolmaker
		87	Saw & File (Da-All)	12	Da-All Operator
		89	Fin File & Fit	6	Toolmaker
		89	Form & Cut Lugs	3	Asst Section Operator
		89	Lay Drg Bore Saw & Dow	4	Asst Toolmaker & Jig-Bore Press Operator
6	3	101	Re-Section (Punch) Re-Grind	5	Blanchard Grinder Operator
		85	Slot Prof Comp Tool D.T. Shots (Rough)	18	Milling Machine Operator
		89	Fin File & Check	3	Toolmaker
		89	Lay-Dark Bore Saw & Dow	4	Asst Toolmaker & Jig-Bore Press Operator
		85	Slot Saw for Strain Relief	1.5	Milling Machine Operator

Job Operation Sheet for Combination Die.

Division

Sheet No. 2 Job No.

Part OCOMB DIE

Same As SO 79-018-444

Drwg P.592505 M-1 Sh W-993556 Date 6-21 SO 79-018-489

Pt	Qty	Gr	Operation	Est Hrs	Remarks
8	3	94	HARDEN	1.5	Heat Treat Specialist
		88	Fin Grd Top & Bot (G&L)	1	Grinder Operator
		91	Sq & Grd Rad (Radial Planer)	10	Radial Planer Operator
		88	Fin Grind Ends & Fit	30	Grinder Operator
9	3		Inserts (Punch)		
		89	Shape & Partly Fit	9/6	Shaper - Operator
		89	File & Fit	17	Toolmaker
		94	HARDEN	.5	Heat Treat Specialist
		89	STONE	6	Toolmaker - Final Fitting
10	6		Split Inserts		
		89	Shape & Fit	12	Shaper - Operator
		85	Slot & Drill Dowel & Mill (Relief)	6	Milling Machine Operator
		94	HARDEN	1	Heat Treat Specialist
		89	STONE	3	Toolmaker - Final Fitting
11	3	101	Punch Section (Punch) Re-Grind	.5	Blanchard Grinder Operator
		85	Slot Prof Comp Tool D.T. Shots (Relief)	18	Milling Machine Operator
		89	Fin File & Check	5	Toolmaker
		89	Lay-Dark Bore Saw & Dow	4	Asst Toolmaker & Jig-Bore Press Operator
		85	Slot Saw Strain Relief	1.5	Milling Machine Operator
		94	HARDEN	1.5	Heat Treat Specialist
		88	Fin Grd Top & Bot (G&L)	1	Grinder Operator
		91	Sq & Grd Rad (Radial Planer	18	Radial Planer Operator
		88	Fin Grd Ends & Fit	30	Grinder Operator

FOREMAN

SHEET NO. 3 TOTAL

PART O Comb. Die

Same As 79-018-444

DRAW P-592-5051 PC Tool SK W-993-556 DATE 6-21 SO 79-018-489

OP	QTY	GA	OPERATION	SET UP HRS	REMARKS
10-20-25	26		Dowell Bushings		
		86	Turn To Fit	9	Asst Lathe Operators
15	1	101	Punch Section - Ro-Grind	1	Surface Grinder Operator
		85	Slot Profile Comp DT Slots (Keller)	13	Milling Machine Operator
		89	Ho-Drl & Bore Scrape Dow	8	Tool Maker & Drill Press Operator
		89	Fin. Ejector Slots & Check	2	Tool Maker
		85	Slot Saw For Strain R	2½	Milling Machine Operator
		94	Harden	2	Hardening Specialist
		88	Fin. Grd Top & Bot. (G&L)	1½	Grinder Operator
		91	Slot Grd Rad. (Radial Planer)	6	Radial Planer Operator
		88	Fin Grd Sides & Fit	24	Grinder - Operator
16	2	101	Die Sections (Side) Rolled Steel	1	Milling Machine Operator
		85	Slot Mill Sides Ends	2	Milling Machine Operator
		89	Ho-Drl & Bore Scrape Dow	4	Tool Maker & Drill Press Operator
		94	Harden	2	Hardening Specialist
		88	Fin. Grd Top-Bot-Ends Fit	8	Grinder - Operator
17	4		Inserts		
		89	Shape & Fit Comp.	6	Shaper Operator
		94	Harden	½	Hardening Specialist
18	4		Punch Sections Center		
		85	Slot Ro-Mill	6	Milling Machine Operator
		85	Slot Form Mill	8	Milling Machine Operator
		85	Ho-Mill Radius & Ends	5	Milling Machine Operator

FOREMAN

SHEET NO. 4 TOTAL

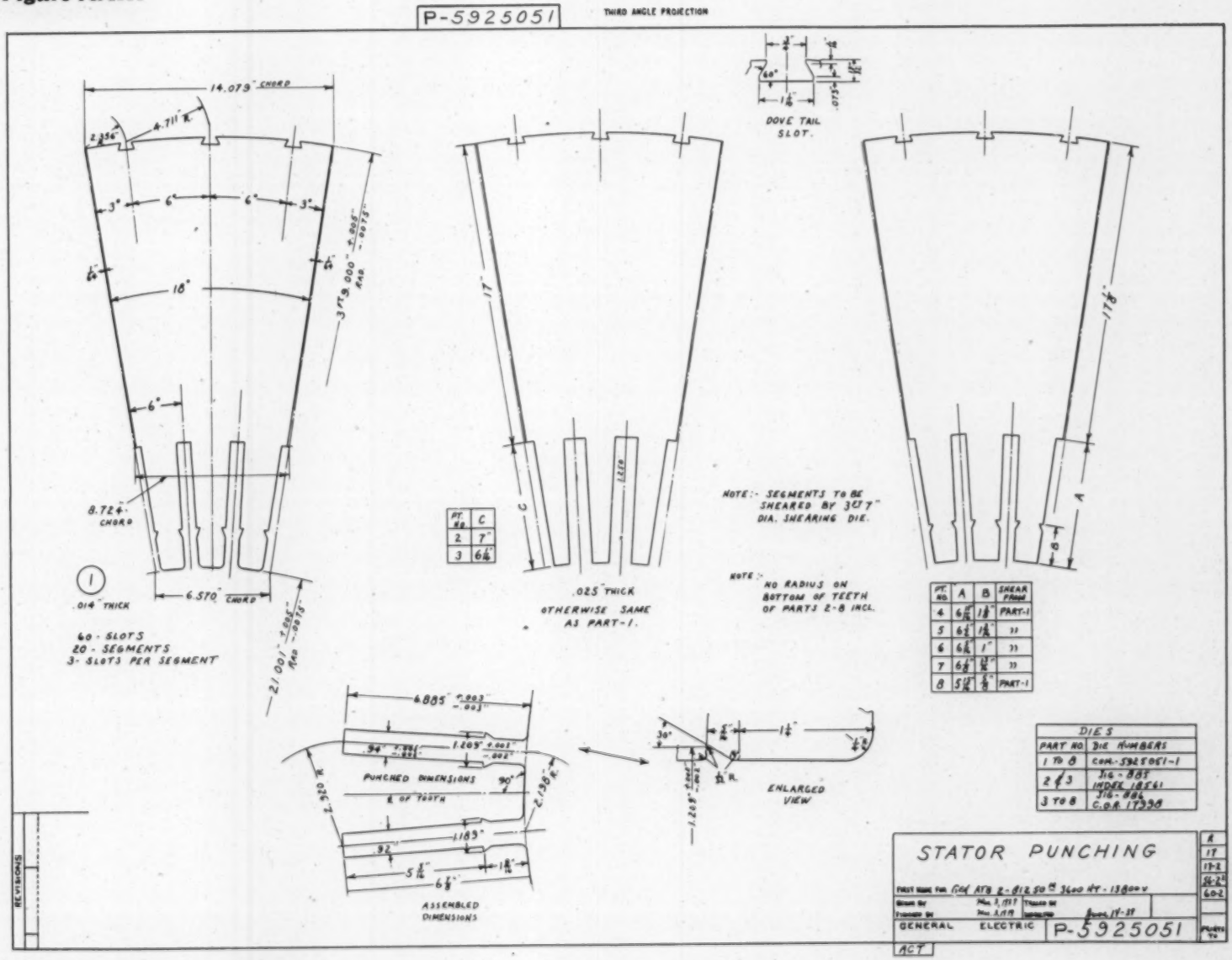
PART O Comb. Die

Same As S.O. 79-018-444

DRAW P-592-5051 PC Tool SK W-993-556 DATE 6-21-79 SO 79-018-489

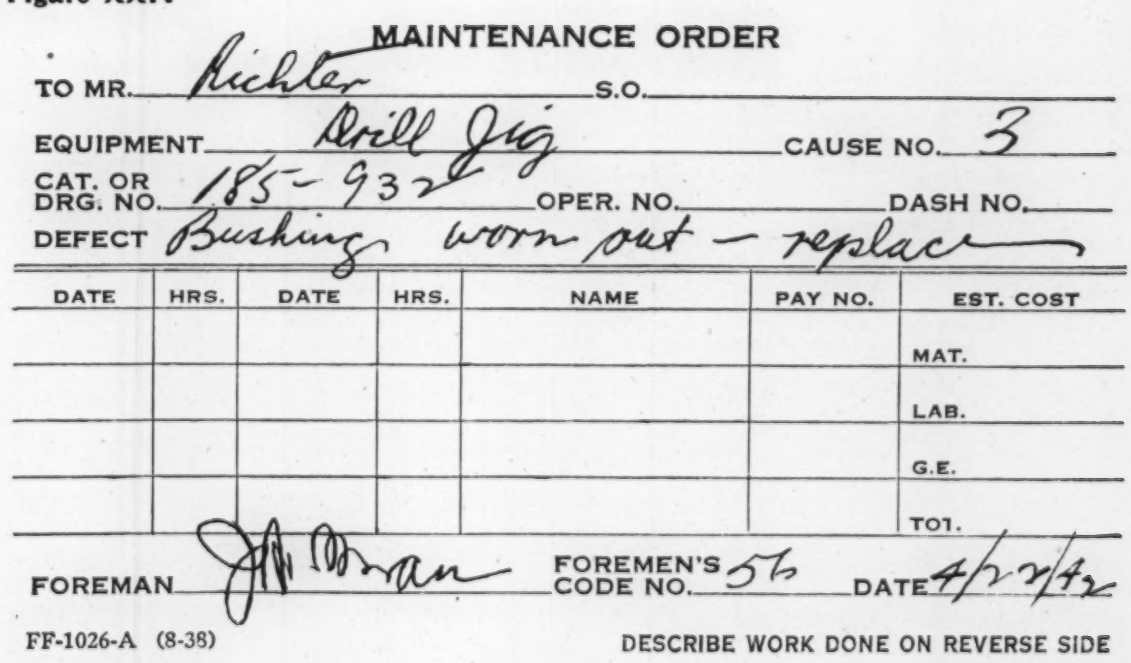
PT.	QTY	GA	OPERATION	SET UP HRS	REMARKS
18	4	89	Ho-Drl & Bore Scrape Dow	8	Tool Maker & Drill Press Operator
		94	Harden & Rockwell	1.5	Hardening Specialist
		88	Fin Grd Guide Comp	40	Grinder Operator
19 2-4			Die Sections (Cut Side)		
		85	Slot Mill Comp	16	Milling Machine Operator
		89	Ho-Drl & Bore Scrape Dow	3	Tool Maker & Drill Press Operator
		94	Harden & Rockwell	1	Hardening Specialist & Foreman or Exec
		88	Fin Grd Guide & Fit	16	Grinder Operator
19	2		Die Sections (Center)		
		85	Slot Mill Comp	24	Milling Machine Operator
		89	Ho-Drl Bore Scrape Dow	3	Tool Maker & Drill Press Operator
		94	Harden & Rockwell	1	Hardening Specialist & Foreman or Exec
		88	Fin Grd Guide & Fit	32	Grinder - Operator
24	2	89	Spacer Blocks (Make)	2	Tool Maker
		101	All Ro-Grinding	4½	Grinder Operator
4-5	2	89	Ho-Drl Saw On Do-All	8	Tool Maker
4-5	2	89	Saw & File (Do-All)	24	Do-All Operator
		89	All Fin File - Stone & Fit	43	Toolmaker
		89	All Ho-Drl Bore Scrape Dow	39	Tool Maker & Drill Press Operator

Figure XXIII



Blueprint of part to be punched.

Figure XXIV



MAINTENANCE ORDER

TO MR. Richter S.O.

EQUIPMENT Drill Jig CAUSE NO. 3

CAT. OR DRG. NO. 185-932 OPER. NO. DASH NO.

DEFECT Bushing worn out - replace

DATE	HRS.	DATE	HRS.	NAME	PAY NO.	EST. COST
						MAT.
						LAB.
						G.E.
						TOT.

FOREMAN J H Moran FOREMEN'S CODE NO. 56 DATE 4/22/42

FF-1026-A (8-38) DESCRIBE WORK DONE ON REVERSE SIDE

The maintenance order for the repair of a drill jig.

High Spots in the "TWI" Program

1 This is ***not a policy-making program.*** It gives no consideration to whom an employer shall hire, how many, or when.

2 It is a practical ***advisory service,*** dealing only with training methods and procedures. It disseminates the latest, factual information based on ***current experience of industry.***

3 It is ***concerned only with workers on pay rolls,*** where training is carried out right on the job within plants. ***Workers learn by doing—produce while learning!***

4 It shows employers how to ***get skilled operation from all grades of workers*** through intensive instruction at the job level.

5 It aids in the development of ***practical plans for upgrading workers*** to higher skilled jobs as rapidly as their ability warrants.

6 It renders specific aid to plants in the ***development of foremen and leadmen*** so that they become better supervisors.

7 "TWI" cooperates with the Apprentice-Training Service in promotion of attention to the development of ***all-round skilled craftsmen.***

8 It works for ***closer cooperation*** between local industry and local governmental placement and training in order to meet employers' definite needs.

9 The entire "TWI" program is carried on with the advice and ***backing of both labor and management.***

10 Training Within Industry service is rendered by ***experienced industrial personnel and training experts loaned to the War Manpower Commission by industry itself.***

CONTACT YOUR NEAREST "TWI" DISTRICT OFFICE FOR COMPLETE DETAILS

U. S. GOVERNMENT PRINTING OFFICE 484645

War Power Com
Train

FOLLOWING THROUGH

With

JOB INSTRUCTION TRAINING

A TRAINING WITHIN INDUSTRY PLAN

The ten hours of Job Instruction Training has put valuable tools in supervisors' hands.

These tools MUST BE USED to produce results.

Here is a practical way to put them to work and to keep them at work.

Jas P. Mitt

War Manpower Commission

Bureau of Training

Training Within Industry Service

6-6437-bu-fo-wp

Why this "follow-through?"

Most supervisors have made some use of Job Instruction Training. Many of them don't get the maximum results from the plan. They don't quite know how to make complete application.

This follow-through plan helps get FULL USE of Job Instruction Training by giving supervisors HELP on how to use it.

Naturally, the providing of such HELP is the responsibility of management.

What is this "follow-through?"

Management can get the FULL USE of Job Instruction Training by placing responsibility for making it work DIRECTLY with the operating organization - and by showing EACH operating supervisor exactly how to use it on his job.

Training Within Industry gives at least ONE person in each plant specific training in how to coach supervisors so they can, in turn, help those who instruct workers on the job.

If the company or plant has a Training Director, he is the logical person to get the details of this program and help put it to work.

If the company or plant has no Training Director, some competent person should be given the assignment. An assistant superintendent, industrial engineer or person of similar experience is usually a good choice.

To whom is this "follow-through" available?

This is offered to all war contractors and subcontractors whose supervisors HAVE HAD the ten-hour program of Job Instruction Training.

What does it cost?

Suitable people who are selected by the war contractors will be trained, without cost to the company, to assist their managements in getting FULL USE of Job Instruction Training.

How long does it take?

Company or plant representatives are given special training in small groups for ONE day.

They can then assist their managements to follow-through in their own plants for whatever period of time is required.

How to get started?

Call or write the nearest District Director - Training Within Industry Service - listed on back page.

6-6437 bu-fo-wp

Following-Through
With
Job Instruction Training

Here is How It Works

1. The chief operating executive calls a meeting of his operating heads where the importance of "following-through" is discussed.

   He points out that TRAINING is an operating function and an important responsibility of operating supervisors. He tells them that they will get technical assistance on how to do it from one of their associates specially prepared by Training Within Industry.

   After the meeting he confirms this decision in a memorandum to his operating heads for them to use in passing the word down the line to all supervisors affected.

2. Each department head works out a schedule so that each of his supervisors gets at least ONE day of individual help on how to follow-through. This help is given by the person designated by management to assist them.

3. The follow-through trainer spends a day with each supervisor of job instructors and gives help as follows:

   He coaches one job instructor (i.e., lead man, job setter, sub-foreman or whoever instructs workers) on just how to make a time table, make breakdowns, and on how to give job instruction. The supervisor of the job instructor observes.

   This supervisor then coaches another of his job instructors to do these same things. The follow-through trainer observes and gives help as needed.

   In this way, each supervisor gets actual PRACTICE on the job in coaching his job instructors.

4. The supervisor then continues on his own. He coaches each of his remaining job instructors so that they make continuous and effective USE of Job Instruction Training.

   The department head follows the progress of job instruction just as any other phase of production.

5. Each job instructor makes his time tables and breakdowns and by use of the four steps gets EACH worker trained so performance can match the objectives set in the time table.

   The supervisor of the job instructors gives continuing help so that the plan works and gets results.

   In the same way, the follow-through trainer gives continuing help to the supervisors. He helps individual supervisors and their job instructors work out the best way to train workers on the "tough," or "knotty," jobs that exist in practically every shop.

WAR MANPOWER COMMISSION

Bureau of Training

TRAINING WITHIN INDUSTRY SERVICE

District Offices

For information or advisory assistance concerning the training of supervisors while on the job, apply to the Training Within Industry district office nearest you.

Atlanta, Ga., Room 603, Grand Theatre Bldg. (Hemlock 6890)

Baltimore, Md., Room 3106, Baltimore Trust Bldg. (Plaza 8170)

Boston, Mass., Room 1035, Park Square Bldg. (Hubbard 0380)

Chicago, Ill., Room 1625, Adams-Franklin Bldg., 222 West Adams St. (Andover 3600)

Cincinnati, Ohio, Room 705, Union Trust Bldg. (Parkway 0100)

Cleveland, Ohio, Room 513 Union Commerce Bldg., Euclid Avenue and East 9th St., (Cherry 7900)

Denver, Colo., Room 551 Equitable Building, (Tabor 3173)

Detroit, Mich., Room 15 Boulevard Bldg., 7310 Woodward Ave. (Trinity 1-5500)

Houston, Tex., North Mezzanine Floor, Gulf Bldg. (Capital 7201)

Indianapolis, Ind., Room 915, Circle Tower Bldg. (Market 8511)

Los Angeles, Calif., 755 Western Pacific Bldg., 1031 So. Broadway (Prospect 4971)

Minneapolis, Minn., 516 Midland Bank Bldg. (Maine 3244)

Newark, N. J., Room 601, 605 Broad St. (Mitchell 2-1114)

New Haven, Conn., Room 515, 152 Temple St. (6-5186)

New York, N. Y., Room 2026, 11 West Forty-second St. (Murray Hill 3-6805)

Philadelphia, Pa,, Room 1740, 12 South Twelfth St. (Locust 3400)

Pittsburgh, Pa., Room 360, Administration Bldg., Cargenie Institute of Technology (Schenly 2925)

Portland, Oreg., Room 1006, Bedell Bldg. (Broadway 8491)

Raleigh, N. C., Room 112, Raleigh Bldg., Fayetteville and Hargett Sts. (2-3306)

St. Louis, Mo., Room 603, Shell Bldg. (Central 4206)

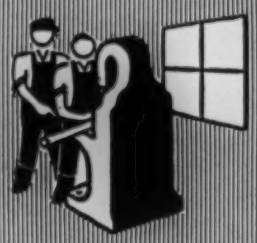
San Francisco, Calif., Room 702, Newhall Bldg., 260 California St. (Exbrook 0369)

Seattle, Wash., Room 5516 White Bldg. (Eliot 0200)

HEADQUARTERS OFFICE

1778 Pennsylvania Ave., N. W.
Washington, D. C. (EXecutive-4660)

6-6437-bu-fo-wp



MORE PRODUCTION THROUGH TRAINING

The

TRAINING WITHIN INDUSTRY PROGRAM

January 1943

(Originally issued January 1942)

Bulletin No. 1

TRAINING WITHIN INDUSTRY

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY PUBLICATIONS

*Bulletins**

1. The Training Within Industry Program.
2. Upgrading.
2–C. How to Break in a Man on a New Job.
3. Developing All - Round Skilled Craftsmen through Apprenticeship.
4. Strengthening the Managerial Organization.
4–A. Expanding the Managerial Organization.
4–B. Improving Supervisors' Knowledge of Responsibilities.
4–C. How to Improve Job Methods.
4–D. How to Improve Job Relations.
4–E. How to Set up a Plant Training Program.
4–F. How to Select New Supervisors.
6. Tying in Pre-Employment Training with On-the-Job Training.
6–A. Supplementary Instruction for Upgrading.
7. Increasing War Production Through Employment of Women.
8. Introducing the New Employee to the Job.
8–A. Safety on the Job for the New Employee.

*Examples of Successful Training**

Meeting the Need for Skilled Workers in a New Airplane Engine Plant.

Training for Quick Production in Heavy Manufacture.

Organizing Manpower for a Small-Arms Ammunition Plant.

Upgrading in a Large Steel Corporation.

Training for the Electrical Department of a Shipyard.

Training for Arc Welding and Acetylene Burning in a Shipyard.

Training for the Toolroom and the Machine Repair.

*Any publication listed above is available without charge on application to the nearest Training Within Industry District Office. See pages 8–11 for locations.

Send orders to Superintendent of Documents, Washington, D. C.

Job Instruction (Western Electric Company), 10 cents.

An Introduction to Shipbuilding (Bethlehem Steel Company), 20 cents.

The

PROGRAM

THE Training Within Industry Program was established in August 1940 by the National Defense Advisory Commission and was continued under the Office of Production Management and then the War Production Board. By Presidential order on April 18, 1942, Training Within Industry was transferred to the Federal Security Agency to function as a part of the new War Manpower Commission which now handles all problems of labor supply and training.

Underlying PURPOSE of "TWI" activity is:

> ***To assist war production industries to meet their manpower needs by training within industry each worker to make the fullest use of his best skill up to the maximum of his individual ability, thereby enabling production to keep pace with war demands.***

Training Within Industry deals exclusively with industry's own training responsibilities. It recommends that all war production plants, consistent with the terms of their existing labor agreements, give balanced and appropriate attention to the following phases of in-plant training:

1. *UPGRADING* of all classes of personnel as their experience and abilities warrant, through planned job progression, job rotation, and intensive supplementary instruction both on and off the job. Each plant should take stock of the talent and experience of its own personnel before employing new men and women.

•

2. Development of *PRODUCTION SPECIALISTS* through intensive instruction on the job in basic operations.

•

3. Development of all-round *SKILLED MECHANICS* through trade apprenticeship, in accordance with Federal standards, separate from production worker training, for the purpose of developing a predetermined, limited number of all-round journeyman mechanics.

•

4. Development of *SUPERVISORS* through careful selection, assignment of supervisory duties of increasing responsibility, and provision for related organized help through discussions and conferences, under both plant and outside auspices, dealing with methods of instruction, methods of developing better ways of doing a job, methods of improving working relationships, and knowledge of responsibilities.

•

HOW "TWI" ASSISTS WAR PRODUCTION INDUSTRY

It maintains a field force with offices in 22 districts throughout the United States, as listed in this bulletin. It is staffed by training and personnel specialists, many of whom are loaned by their companies for part-time or full-time work.

T. W. I. Advises

Training Within Industry renders specific advisory assistance to war production industries in inaugurating and improving programs which they carry on within their own plants, at their own expense. There is no authority to enter a plant on any basis other than with management's cooperation. Four general types of advisory assistance, listed below, apply in most cases and are adapted to fit conditions in each specific plant:

1. Identification of training needs and recommendation of training programs to fill such needs.
2. Aid in setting up a program within a plant to meet its needs.
3. Clearing house on experience of other employers who have met their training problems. This is cleared through "TWI" headquarters and its field organization.
4. Recommending the most effective use of tax-supported employment and training agencies of the State and Federal governments. Only through interpreting job requirements and the needs of industry to these agencies and interpreting their facilities to industry can maximum results be obtained from preemployment and supplementary instruction.

T. W. I. Conducts

In addition to the above advisory assistance, the Training Within Industry Division conducts specific intensive training programs for the development of potential, newly appointed, and experienced supervisors and training directors. The programs for supervisors require 10 hours, and for training directors 48 hours.

Job Instruction Training gives the supervisor practice in how to "break in" men on new jobs.

Job Methods Training shows the supervisor how to simplify and improve methods of doing a job.

Job Relations Training gives the supervisor pointers and practice in how to work with people in a way that gains cooperation and promotes teamwork.

Training of Training Directors gives intensified coaching in how to operate and improve complete, plant-wide training programs.

The
POLICY
approved by both Management and Labor

"LEARN BY DOING — PRODUCE WHILE LEARNING"

IN this emergency, as well as in normal times, it is good American practice and efficient business for each worker to make the fullest use of his best skill up to the maximum of his individual ability. Only through such use of the intelligence and skill of the Nation's manpower can production keep pace with war needs.

1. Additional workers should not be trained unless locally available workers of equal skill have been absorbed.

2. There are normal losses from among skilled workers due to advancement into supervisory positions, changes to other occupations, sickness, death, and retirement. These losses go on continuously, and it is necessary to bring along well-trained workers to replace them. In addition, there is need to make up for the lack of apprentice training during the past 10 years. These are the reasons why organized apprenticeship programs are so important now.

There are two important phases of apprentice training:

(*a*) A definitely planned program of experience, scheduled and assigned step by step to enable the apprentice over a predetermined time to acquire skill in various kinds of skilled work in a trade.

(*b*) For every skilled job there is related technical matter, much of which can best be taught off the job. To be effective, this related instruction must be very closely tied into the current job experience. Practice, related theory, and technical knowledge must go hand in hand. Workers, employers, and technical educators should collaborate in determining what shall be included in this instruction and how it can best be related to the work experience.

The proportion of apprentices to be trained can best be determined in local areas in numbers and programs agreed upon in joint conferences between management and interested groups of employees or by agreements arrived at by collective bargaining units.

3. In a less formal way, many workers acquire a breadth of experience by learning one job at a time and becoming skilled in that, and advancing to a higher grade of work when opportunity permits. In an upgrading program the time cannot be definite; it is controlled by available opportunities, depending upon production programs and specific vacancies as they occur. This differs from an apprenticeship program where the opportunity is controlled by advance agreement. Therefore, while craftsman experience may be gained by an apprentice in from 3 to 4 years, it may take the production specialist two or three times as long, or longer, to acquire corresponding skill and versatility through an upgrading program, and, of course, many will remain in a specialized occupation.

In times of rapid expansion when there is a shortage of skilled workers, there is no choice but that of using inexperienced workers from other kinds of work or young people without any work experience but with good orientation background gained in public vocational schools during preemployment training. Through intensive instruction on the job they must then be brought to their highest skill on a limited

operation in the shortest possible time. Advancement into more skilled work should always be made from among employees of longer experience on jobs which are good foundations for the higher skills. Attempts should not be made to displace all-round skilled workers by narrowly skilled specialists.

4. Where there is a collective bargaining agreement the employees' elected representatives should work with management in the establishment of plant training programs.

5. Management has a twofold responsibility:

Foremen, instructors, and experienced workers must assist less experienced workers in acquiring new skills; and as far as possible they should see that employees who have the desire and capacity for advancement be not kept indefinitely on jobs requiring skill in single operations. The supervisor therefore has the responsibility of developing his men and should acquire special skill in instruction just as he must acquire the skill of maintaining good relations with his men and the skill of improving technical production.

Apprenticeship, upgrading, and supervisory training programs within industry are greatly implemented by making available opportunities for individuals to get instruction and related knowledge which enable them to fit themselves for advancement. Whether these facilities are made available by public educational institutions, employers or organized labor groups, it is essential that there be continuous consultation between workers, management, and educators. Only through such cooperation can the instruction be of immediate practical value.

Such philosophy, such practices, and such consultation should result in well-balanced training programs, and bring about an orderly and an effective approach to creating and maintaining a supply of competent workers available to meet the rapidly increasing needs of war industry. Training Within Industry promotes these policies.

APPROVED ON AUGUST 21, 1942
MANAGEMENT-LABOR POLICY COMMITTEE
WAR MANPOWER COMMISSION

R. Conrad Cooper,
Wheeling Steel Corporation.

H. A. Enochs,
The Pennsylvania R. R. Co.

Frank P. Fenton,
American Federation of Labor.

John P. Frey,
American Federation of Labor.

Lt. Col. Kenneth Gardner,
N. Y. Shipbuilding Corp.

R. E. Gillmor,
Sperry Gyroscope Co., Inc.

Clinton S. Golden,
United Steel Workers of America.

John Green,
Industrial Union of Marine and Shipbuilding Workers of America.

R. Randall Irwin,
Lockheed Aircraft Corporation.

George Masterson,
United Association of Journeymen Plumbers and Steamfitters.

Walter P. Reuther,
United Automobile, Aircraft, and Agricultural Implement Workers of America.

C. J. Whipple,
Hibbard, Spencer, Bartlett & Co.

Mr. Fenton, Mr. Gillmor, Mr. Irwin, and James J. Matles, of the United Electrical and Radio Workers (alternate for Mr. Golden), are members of the Advisory Subcommittee for liaison between the Training Within Industry Division and the Management-Labor Policy Committee.

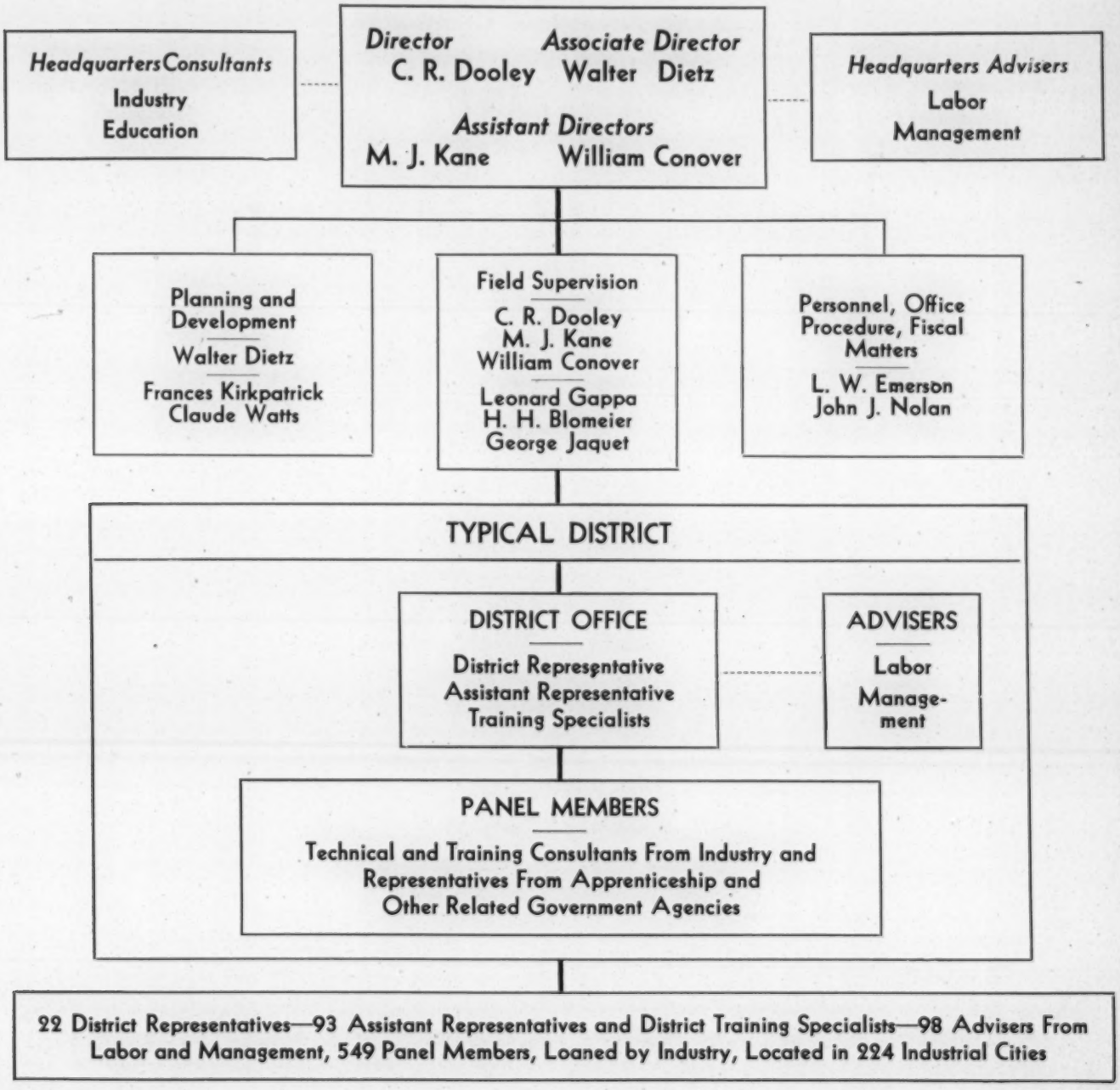
Training Within Industry has been guided by a Committee of Labor and Management Advisers which approved the first statement of the program on September 18, 1940, and issued the first "TWI" Policy statement in April 1941. The above policy statement continues the basic policy originally established. The members of the original committee were: M. F. Burke, C. S. Ching, E. O. Davidson, Clinton S. Golden, John Green, M. H. Hedges, R. Randall Irwin, W. G. Marshall, K. F. Ode, Walter P. Reuther, E. J. Robeson, and John E. Rooney.

WAR MANPOWER COMMISSION

TRAINING WITHIN INDUSTRY

ORGANIZATION

Headquarters: Room 4762, Social Security Building
Fourth St. and Independence Ave. SW., Washington, D. C.
Executive 4660



FIELD ORGANIZATION

★ In addition to the names shown, each district staff includes ten or more panel consultants who are not listed

DISTRICT	Office Address	Representative
1	**Northern New England** Maine, Massachusetts, Vermont, New Hampshire Room 1035, Park Square Building, **Boston,** Mass. (Hubbard 0380)	**Harry H. Kerr,** Boston Gear Works, Inc.
2	**Southern New England** Connecticut, Rhode Island Room 513, 152 Temple Street, **New Haven,** Conn. (6-5186)	**Joseph Eugene Moody,** Hat Corp. of America
3	**Upstate New York** New York State (exclusive of Metropolitan New York)	**Sterling W. Mudge,** Acting Representative
4	**Metropolitan New York** Room 2026, 11 West 42nd Street, **New York,** N. Y. (Murray Hill 3-6805)	**Sterling W. Mudge,** Socony Vacuum Oil Co.
5	**New Jersey** Room 601, 605 Broad Street, **Newark,** N. J. (Mitchell 2-1114)	**Glenn L. Gardiner,** Forstmann Woolen Co.
6	**Eastern Pennsylvania and Delaware** Room 1740, 12 South 12th Street, **Philadelphia,** Pa. (Locust 3400)	**H. W. Jones,** The Atlantic Refining Co.
7	**Maryland** Room 3106, Baltimore Trust Building, **Baltimore,** Md. (Plaza 8170)	**James H. Kahlert,** Bendix Radio Corp.
8	**Atlantic Central** Virginia, North and South Carolina Raleigh Building, Fayetteville and Hargett Streets, **Raleigh,** N. C. (2-3306)	**George G. Arthur** The Champion Paper & Fibre Co.
9	**Southeastern** Georgia, Florida, Alabama, Mississippi, Central and Eastern Tennessee Georgia School of Technology, 225 North Avenue NW., **Atlanta,** Georgia. (Hemlock 6890)	**A. S. Hotchkiss,** Tennessee Coal, Iron & Railroad Co.
10	**Ohio Valley** Southern Ohio, Southern West Virginia, Kentucky Room 703-705, Union Trust Building, **Cincinnati,** Ohio. (Cherry 3740)	**Paul Mooney,** Kroger Grocery and Baking Co.
11	**Western Pennsylvania** (except Erie County) and Northern West Virginia. Room 360, Administration Building, Carnegie Institute of Technology, **Pittsburgh,** Pa. (Mayflower 2600)	**C. S. Coler,** Westinghouse Electric & Manufacturing Co.
12	**Northern Ohio** (except Lucas County) and Erie County, Pa. 4th Floor, Union Commerce Building, Chester and Ninth Streets, **Cleveland,** Ohio. (Cherry 5975)	**Oscar Grothe,** White Sewing Machine Co.

Advisers

Districts 1 to 8, inclusive

Labor Advisers—	Management Advisers—	DISTRICT
Joseph J. Kelleher, Worcester Industrial Union Council, CIO J. Arthur Moriarty, Boston Typographical Union	Clarence G. McDavitt, New England Tel. & Tel. Co. Everard Stubbs, Fellows Gear Shaper Co.	1
J. H. DeCantillon, International Association of Machinists Thomas Kearney, International Brotherhood of Electrical Workers	Carl A. Gray, Grenby Manufacturing Co. Richmond Viall, Brown & Sharpe Mfg. Co.	2
(To be appointed)	(To be appointed)	3
Thomas J. Lyons, N. Y. State Federation of Labor Gustave A. Strebel, N. Y. State Industrial Union Council John J. Brennan, Alternate, Building and Construction Trades Council	D. J. Hoose, The Texas Co. R. E. Gillmor, Sperry Gyroscope Co., Inc. J. C. Ward, Jr., Fairchild Engine & Airplane Corporation	4
Peter J. Flynn, Industrial Union of Marine & Shipbuilding Workers of America Carl L. Gylling, International Association of Machinists	Thomas R. Jones, American Type Founders, Inc.	5
Anthony Martinez, Steel Workers Organizing Committee Carl Bersing, Philadelphia Industrial Union Council Charles Sehl, International Association of Machinists David Williams, Pennsylvania Federation of Labor	Earl Sparks, Metal Manufacturers Association L. B. F. Raycroft, Electric Storage Battery Co.	6
Frank J. Bender, Regional Director, CIO F. N. Kershaw, International Association of Machinists	Alonzo G. Decker, Sr., The Black & Decker Mfg. Co. Stewart Cort, Bethlehem Steel Co. Charles R. Hook, Jr., Rustless Iron and Steel Co.	7
E. L. Sandefur, Director, CIO T. A. Wilson, North Carolina Industrial Commission C. A. Fink, North Carolina State Federation of Labor	Edward J. Robeson, Jr., Newport News Shipbuilding & Dry Dock Co. Frederick W. Symmes, Union Buffalo Mills Co.	8
Paul R. Christopher, Tennessee State Industrial Union Council Dewey L. Johnson, Georgia Federation of Labor Charles Gramling, American Federation of Labor	B. W. Sinclair, Georgia Power Co. James F. Vance, Tennessee Coal, Iron & Railroad Co.	9
John J. Hurst, Central Labor Council	Lewis M. Crosley, The Crosley Corporation George A. Seyler, The Lunkenheimer Co.	10
Clinton Golden, Steel Workers Organizing Committee, CIO William G. Shord, Director, International Brotherhood of Electrical Workers	W. G. Marshall, Westinghouse Electric & Manufacturing Co. Henry D. Scott, Wheeling Steel Corporation	11
Albert Dalton, Cleveland Building and Construction Trades Council	Ray S. Livingstone, Thompson Products Co. Warner Seeley, Warner-Swasey Co.	12

FIELD ORGANIZATION

★ In addition to the names shown, each district staff includes ten or more panel consultants who are not listed

DISTRICT	Office Address	Representative
13	**Michigan** and Lucas County, Ohio 15 Boulevard Building, 1st floor, 7310 Woodward Avenue, **Detroit,** Mich. (Trinity 1-5500)	**M. M. Olander,** Owens-Illinois Glass Co. **O. F. Carpenter,** Associate Representative
14	**Indiana** (except Lake and Porter Counties) Room 1428, Circle Tower Building, **Indianapolis,** Ind. (Market 9411)	**A. E. Sinclair,** P. R. Mallory & Co.
15	**Mid-West** (except 3 counties adjacent to St. Louis, Mo.), 2 counties in Indiana, and 1 county in Iowa Room 2600, 20 North Wacker Drive, **Chicago,** Ill. (Andover 3600)	**Paul A. Mertz,** Sears Roebuck & Co.
16	**North Central** Minnesota, North Dakota, South Dakota, Iowa (except 1 county), Nebraska 326 Midland Bank Building, **Minneapolis,** Minn. (Maine 3244)	**Ernest L. Olrich,** Munsingwear, Inc.
17	**South Central** Missouri, Kansas, Oklahoma, Arkansas, Western Tennessee, and 3 counties in Illinois Room 603, Shell Building, **St. Louis,** Mo. (Central 4206)	**A. Earl Wyatt,** Laclede Gas Light Co.
18	**Gulf District** Texas and Louisiana Room 3201, Gulf Building, **Houston,** Tex. (Capitol 7201)	**Tracy T. Word,** Acting Representative
19	**Mountain District** Colorado and Wyoming 7th floor 511 Sixteenth Street, Kittredge Building, **Denver,** Colo. (Tabor 3173)	**George M. Kirk,** Colorado Fuel & Iron Corp.
20	**Pacific Southwest** Southern California, Arizona, New Mexico 755 Western Pacific Building, 10315 Broadway, **Los Angeles,** Calif.	**Garner Beckett,** Riverside Cement Co.
21	**Pacific Central** Northern California, Nevada, Utah Room 702, Newhall Building, 260 California Street, **San Francisco,** Calif. (Exbrook 0369)	**Alexander R. Heron,** Crown Zellerbach Corp.
22	**Pacific Northwest** Washington, Oregon, Idaho, Montana Room 957, Stuart Building, Fourth and University Streets, **Seattle,** Wash. (Eliot 6404) **Oregon District** Bedell Building, Room 1006, **Portland,** Oreg. (Broadway 0380)	**Walter Williams,** Continental, Inc.

Advisers

Districts 16 to 22, inclusive

Labor Advisers—	Management Advisers—	DISTRICT
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H. S. McIlvaigh, Tacoma Central Labor Council D. E. Nickerson, Oregon Federation of Labor	Ernest R. Hinton, Olympia Steel Works Claire Bowman, Morris H. Jones, Jones Lumber Co. Ross McIntyre, International Sales & Produce Co.	22

High Spots in the "TWI" Program

1 This is ***not a policy-making program.*** It gives no consideration to whom an employer shall hire, how many, or when.

2 It is a practical ***advisory service,*** dealing only with training methods and procedures. It disseminates the latest, factual information based on ***current experience of industry.***

3 It is concerned only with training carried out right on the job within plants. ***Workers learn by doing—produce while learning!***

4 It shows employers how to ***get skilled operation from all grades of workers*** through intensive instruction at the job level.

5 It aids in the development of ***practical plans for upgrading workers*** to higher skilled jobs as rapidly as their ability warrants.

6 It renders specific aid to plants in the ***development of foremen and leadmen*** so that they become better supervisors.

7 "TWI" cooperates with the Apprentice-Training Service in promotion of attention to the ***development of all-round skilled craftsmen.***

8 It works for ***closer cooperation*** between local industry and local governmental placement and training in order to meet employers' definite needs.

9 The entire "TWI" program is carried on with the advice and ***backing of both labor and management.***

10 Training Within Industry service is rendered by ***experienced industrial personnel and training experts loaned to the War Manpower Commission by industry itself.***

CONTACT YOUR NEAREST "TWI" DISTRICT OFFICE FOR COMPLETE DETAILS

U. S. GOVERNMENT PRINTING OFFICE 475869

W.m.p. comm.

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WAR MANPOWER COMMISSION

POLICY ON EMPLOYMENT OF YOUTH UNDER 18 YEARS OF AGE

Signed by the Chairman of the
Commission, January 30, 1943.

The necessary expansion of our military industrial personnel requires maximum utilization of all available and potential sources of labor. These potential sources include youth between the ages of 14 and 18 years whose services would not be immediately required in normal times. If employed, however, it should be only under conditions which adequately safeguard their physical and intellectual development.

The first responsibility and obligation of youth under 18 even in war time is to take full advantage of their educational opportunities in order to prepare themselves for war and post-war services and for the duties of citizenship. It is essential that young people have the fullest possible opportunity consistent with the war effort to complete their education. Those with special aptitudes and capacity for further training should continue their education in order to develop their maximum abilities applicable to war and post-war needs.

In most cases youth under 18 can best contribute to the war program by continuing in school and, when their services are required, accepting vacation and part-time employment. However, it is recognized that the demands of the war period will increase the number who in normal times leave school to enter full-time employment before reaching 18. In any case, all forms of employment of such youth, including employment in agriculture, must be specially safeguarded. Their services must be used in such ways as to bring about their maximum contribution to manpower needs consistent with the protection of their health and welfare and the fullest utilization and development of their aptitudes, abilities, and interests. The achievement of those objectives requires the active cooperation of young people, their parents, Government agencies, educational authorities, management and labor.

To promote proper utilization of the labor resources of youth with due regard to the welfare of youth and the future needs of the Nation, the War Manpower Commission hereby declares as basic National policy that:

1. School attendance laws and child-labor standards embodied in State and Federal laws be preserved and enforced, and the minimum standards hereinafter listed not be construed to warrant any relaxation of these laws or lowering of the standards embodied in them;

2. No one under 14 years of age be employed full-time or part-time as a part of the hired labor force;

3. Youth under 18 years of age be employed only:

a. after the employer obtains proof of age in the form of employment or age certificates or, in case such certificates are not legally required, other reliable evidence;

b. in work suited to their age and strength, avoiding all occupations that are hazardous or detrimental to health or welfare;

c. where provision is made for adequate meal and rest periods or time, and facilities therefor, adequate sanitary facilities; and safeguards for health and safety;

d. for periods suited to their age and strength, and in no case for more than 8 hours a day or 6 consecutive days, except as deviations may be necessary where the worker is engaged in continuing farm work of a non-seasonal character and is domiciled at the place of employment, or except as temporary departures from the above standard under adequate safeguards, where permitted for youth aged 16 and 17 under existing Federal or State laws, rules or regulations, may be necessary to meet a special emergency;

e. during hours of day not detrimental to their health and welfare; and

f. at wages paid adult workers for similar job performance;

4. Youth aged 14 or 15 be employed only when, in addition to the foregoing conditions:

a. qualified older workers are not available; and

b. the employment is not in manufacturing or mining occupations;

5. In-school youth be employed only to the extent that the combined school and work activities involve no undue strain, and that combined school and work hours, at least for youth under 16, not exceed 8 a day;

6. In-school youth not be employed during school hours unless the Area or Regional Manpower Director has determined that temporary needs of an emergency character cannot be met by full use of other available sources of labor, in which case school programs shall be adjusted under plans that:

a. provide for the educational progress of those who take employment;

b. avoid interference with the school attendance of those who do not take employment; and

c. avoid the closing of any school or grades therein, except to the extent that the hours, terms or curricula are readjusted to preclude the curtailment of educational opportunities;

7. When war-time emergency cooperative arrangements have been entered into with school authorities for the part-time employment of in-school youth as a part of the school program, the employer be responsible for certifying to the school authorities that such employment will be in conformity with State and Federal laws governing the employment of minors and with the standards contained in Sections 3 to 7 above, and the school authorities be responsible for permitting school children to take only those jobs that will contribute definitely to their educational welfare and useful work experience;

8. When it is necessary to transport young people to and from work, safe and adequate means of transportation be provided, and the period of work and transportation not exceed 10 hours a day;

9. Where youth under 18 years of age are recruited in groups for agricultural work requiring them to live away from home, prior to placement, assurances be furnished by appropriate community or other agencies that suitable living conditions, sanitary facilities, health protection, supervision, and leisure-time activities will be provided; and in no case youth aged 14 or 15 be recruited for work requiring them to live away from home except where such work is in connection with programs conducted by recognized youth-serving agencies that provide close supervision;

10. Any youth interested in work in another area not leave his own area in search of work without first:

a. registering for employment at the nearest local office of the United States Employment Service or such other agency as may be designated by the War Manpower Commission;

b. presenting evidence of parental consent; and

c. being referred by such office to a specific job opening where he can be lawfully employed, and where there are suitable arrangements for housing.

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Miss Nicolburg
WMP Com
Army

OFFICE OF WAR INFORMATION
War Manpower Commission

For Immediate Release
Tuesday, March 2, 1943

PM-4325

A third list of colleges and universities, which have been declared eligible for use by the War and Navy Departments in the conduct of their basic and specialized war training programs, was announced today by the Joint Committee for the Selection of Non-Federalized Educational Institutions.

Today's announcement raised the aggregate number of institutions approved by the Joint Board for the placement of training programs by the War and Navy departments to 435.

A total of 238 institutions was included in the third list as eligible for the placement of war training programs. Of this number 137 had been included in previous lists as approved for the placement of other types of War and Navy training programs, resulting in a net increase of 101 in the number of eligible colleges and universities.

The Joint Committee is composed of three representatives each from the War and Navy Departments and the War Manpower Commission. Dr. E. C. Elliott, President of Purdue University and chief of Professional and Technical Service of the Bureau of Training, War Manpower Commission is chairman.

In each of its announcements of eligible lists of colleges and Universities, the Joint Committee has stated that the placement of an institution upon an approved list for a specific war training program is no guarantee that the War or Navy Departments will utilize the institution.

The Joint Committee, by agreement between the War Department, the Navy Department and the War Manpower Commission, selects the Institutions and approves them for certain specified programs such as those for basic training and engineering.

The Committee will continue to approve other institutions and in some instances additional training programs for institutions already approved. Already many colleges and universities have been approved for the placement of more than one program.

Under the terms of the general order under which the Joint Committee was appointed, the War and Navy Departments may enter into new contracts only with educational institutions on the committee's eligible lists. Renewal or replacement of contracts will be cleared through the Joint Committee. The Army and Navy was operating between 600 and 700 projects in non-federal educational institutions before the Joint Committee was appointed.

(over)

For inspection and possible contract by the Navy Department for Basic Training on the New Navy College Program, V-12.

Alabama:	HOWARD COLLEGE, Birmingham
Arizona:	ARIZONA STATE TEACHERS COLLEGE, Flagstaff
Arkansas:	ARKANSAS A & M COLLEGE, Monticello
California:	COLLEGE OF THE PACIFIC, Stockton
	LOS ANGELES CITY COLLEGE, Los Angeles
	OCCIDENTAL COLLEGE, Los Angeles
	UNIVERSITY OF CALIFORNIA, Berkeley
	UNIVERSITY OF CALIFORNIA, Los Angeles
	UNIVERSITY OF REDLANDS, Redlands
Colorado:	COLORADO COLLEGE, Colorado Springs
	WESTERN STATE COLLEGE OF COLORADO, Gunnison
Connecticut:	TRINITY COLLEGE, Hartford
	WESLEYAN UNIVERSITY, Middletown
Dist. of Col:	AMERICAN UNIVERSITY, Washington
Florida:	UNIVERSITY OF MIAMI, Coral Gables
Georgia:	EMORY UNIVERSITY, Emory University
	MERCER UNIVERSITY, Macon
Illinois:	ILLINOIS STATE NORMAL UNIVERSITY, Normal
	ILLINOIS WESLEYAN UNIVERSITY, Bloomington
	NORTHWESTERN UNIVERSITY, Evanston
Indiana:	EARLHAM COLLEGE, Richmond
	EVANSVILLE COLLEGE, Evansville
	INDIANA STATE TEACHERS COLLEGE, Terre Haute
	PURDUE UNIVERSITY, West Lafayette
	UNIVERSITY OF NOTRE DAME, Notre Dame
	WABASH COLLEGE, Crawfordsville
Iowa:	CORNELL COLLEGE, Mt. Vernon
	LUTHER COLLEGE, Decorah
	ST. AMBROSE COLLEGE, Davenport
	UNIVERSITY OF DUBUQUE, Dubuque
Kansas:	BETHANY COLLEGE, Lindsborg
	COLLEGE OF EMPORIA, Emporia
	SOUTHWESTERN COLLEGE, Winfield
	WASHBURN UNIVERSITY, Topeka
Kentucky:	BEREA COLLEGE, Berea
	MURRAY STATE TEACHERS COLLEGE, Murray
Louisiana:	SOUTHWESTERN LOUISIANA INSTITUTE, Lafayette
	TULANE UNIVERSITY OF LOUISIANA, New Orleans
Maine:	BATES COLLEGE, Lewiston
Maryland:	MT. SAINT MARY'S COLLEGE, Emmitsburg
Massachusetts:	COLLEGE OF THE HOLY CROSS, Worcester
	HARVARD UNIVERSITY, Cambridge
	WILLIAMS COLLEGE, Williamstown
Michigan:	ALMA COLLEGE, Alma
	CENTRAL MICHIGAN COLLEGE OF EDUCATION, Mt. Pleasant
	GENERAL MOTORS INSTITUTE, Flint
	UNIVERSITY OF MICHIGAN, Ann Arbor
	WESTERN MICHIGAN COLLEGE, Kalamazoo

Minnesota:	GUSTAVUS ADOLPHUS COLLEGE, St. Peter
	ST. MARY'S COLLEGE, Winona
Mississippi:	MILLSAPS COLLEGE, Jackson
	MISSISSIPPI COLLEGE, Clinton
Missouri:	NORTHWEST MISSOURI STATE TEACHERS COLLEGE, Maryville
	PARK COLLEGE, Parkville
	WESTMINISTER COLLEGE, Fulton
Montana:	CARROLL COLLEGE, Helena
	MONTANA SCHOOL OF MINES, Butte
Nebraska:	DOANE COLLEGE, Crete
	PERU STATE TEACHERS COLLEGE, Peru
New Hampshire:	DARTMOUTH COLLEGE, Hanover
New Jersey:	DREW UNIVERSITY, Madison
New Mexico:	UNIVERSITY OF NEW MEXICO, Albuquerque
New York:	COLGATE UNIVERSITY, Hamilton
	CORNELL UNIVERSITY, Ithaca
	HOBART AND WILLIAM SMITH COLLEGES, Geneva
	HOFSTRA COLLEGE, Hampstead
	ST. LAWRENCE UNIVERSITY, Canton
	UNION COLLEGE, Schnectady
	UNIVERSITY OF ROCHESTER, Rochester
North Carolina:	DUKE UNIVERSITY, Durham
	LENIOR-RHYNE COLLEGE, Hickory
	UNIVERSITY OF NORTH CAROLINA, Chapel Hill
North Dakota:	STATE TEACHERS COLLEGE, Minot
	STATE TEACHERS COLLEGE, Valley City
Ohio:	BALDWIN-WALLACE COLLEGE, Berea
	BOWLING GREEN STATE UNIVERSITY, Bowling Green
	DENNISON UNIVERSITY, Granville
	JOHN CARROLL UNIVERSITY, Cleveland
	MIAMI UNIVERSITY, Oxford
	OBERLIN COLLEGE, Oberlin
	OHIO WESLEYAN UNIVERSITY, Deleware
	COLLEGE OF WOOSTER, Wooster
Oregon:	WILLAIMETTE UNIVERSITY, Salem
Pennsylvania:	BLOOMSBURG STATE TEACHERS COLLEGE, Bloomsburg
	BUCKNELL UNIVERSITY, Lewisburg
	FRANKLIN & MARSHALL COLLEGE, Lancaster
	LOCKHAVEN STATE TEACHERS COLLEGE, Lockhaven
	MUHLENBERG COLLEGE, Allentown
	PENNSYLVANIA STATE COLLEGE, State College
	SWARTHMORE COLLEGE, Swarthmore
	TEMPLE UNIVERSITY, Philadelphia
	UNIVERSITY OF PENNSYLVANIA, Philadelphia
	URSINUS COLLEGE, Collegeville
	VILLANOVA COLLEGE, Villanova
Rhode Island:	BROWN UNIVERSITY, Providence
South Carolina:	NEWBERRY COLLEGE, Newberry
	UNIVERSITY OF SOUTH CAROLINA, Columbia
Tennessee:	CARSON-NEWMAN COLLEGE, Jefferson City
	MILLIGAN COLLEGE, Milligan College
	UNIVERSITY OF THE SOUTH, Sewanee
Texas:	NORTH TEXAS AGRICULTURAL COLLEGE, Arlington
	RICE INSTITUTE, Houston
	SOUTHWESTERN UNIVERSITY, Georgetown
	TEXAS CHRISTIAN UNIVERSITY, Fort Worth

(Over)

Utah:	BRIGHAM YOUNG UNIVERSITY, Provo
Vermont:	MIDDLEBURY COLLEGE, Middlebury
Virginia:	EMORY AND HENRY COLLEGE, Emory
	HAMPDEN-SYDNEY COLLEGE, Hampden-Sydney
	UNIVERSITY OF RICHMOND, Richmond
Washington:	GONZAGA UNIVERSITY, Spokane
	UNIVERSITY OF WASHINGTON, Seattle
	WHITMAN COLLEGE, Walla Walla
West Virginia:	BETHANY COLLEGE, Bethany
Wisconsin:	LAWRENCE COLLEGE, Appleton

To the Navy Department for training in Diesel Engineering

North Carolina:	STATE COLLEGE OF AGRICULTURE AND ENGINEERING OF THE UNIVERSITY OF NORTH CAROLINA, Raleigh

For inspection and possible contract by the Navy Department for Specialized Naval Training

Massachusetts:	BABSON INSTITUTE, Boston

For inspection and possible contract by the Navy Department for training Women Reserves (WAVES)

Ohio:	MIAMI UNIVERSITY, Oxford

For Inspection and possible contract by the War Department for Basic Training in the Army Specialized Training Program:

Arkansas:	HENDRIX COLLEGE, Conway
California:	PACIFIC UNION COLLEGE, Angwin
	STANFORD UNIVERSITY, Stanford
	UNIVERSITY OF CALIFORNIA, Berkeley
Colorado:	UNIVERSITY OF DENVER, Denver
Connecticut:	YALE UNIVERSITY, New Haven
Illinois:	UNIVERSITY OF CHICAGO, Chicago
	UNIVERSITY OF ILLINOIS, Urbana
Indiana:	PURDUE UNIVERSITY, Lafayette
	UNIVERSITY OF INDIANA, Bloomington
Iowa:	UNIVERSITY OF IOWA, Iowa City
Maine:	BOWDOIN COLLEGE, Brunswick
Maryland:	JOHNS HOPKINS UNIVERSITY, Baltimore
	WESTERN MARYLAND COLLEGE, Westminister
Massachusetts:	HARVARD UNIVERSITY, Cambridge
Michigan:	UNIVERSITY OF MICHIGAN, Ann Arbor
	WAYNE UNIVERSITY, Detroit
Minnesota:	UNIVERSITY OF MINNESOTA, Minneapolis
Missouri:	ST. LOUIS UNIVERSITY, St. Louis
Nebraska:	CREIGHTON UNIVERSITY, Omaha
New Jersey:	PRINCETON UNIVERSITY, Princeton
New York:	CORNELL UNIVERSITY, Ithaca
	HAMILTON COLLEGE, Clinton
	UNIVERSITY OF BUFFALO, Buffalo
Ohio:	OHIO STATE UNIVERSITY, Columbus
	UNIVERSITY OF DAYTON, Dayton
	WESTERN RESERVE UNIVERSITY, Cleveland
	XAVIER UNIVERSITY, Cincinnati

Pennsylvania:	ALLEGHENY COLLEGE, Meadville
	HAVERFORD COLLEGE, Haverford
	UNIVERSITY OF PENNSYLVANIA, Philadelphia
	UNIVERSITY OF PITTSBURGH, Pittsburgh
	WASHINGTON AND JEFFERSON COLLEGE, Washington
Tennessee:	VANDERBILT UNIVERSITY, Nashville
Virginia:	COLLEGE OF WILLIAM AND MARY, Williamsburg
Washington:	UNIVERSITY OF WASHINGTON, Seattle
	WALLA WALLA COLLEGE, College Place
Wisconsin:	UNIVERSITY OF WISCONSIN, Madison

For inspection and possible contract by the War Department for Training in Personnel Psychology in the Army Specialized Training Program.

California:	
	STANFORD UNIVERSITY, Stanford
	UNIVERSITY OF CALIFORNIA, Berkeley
Illinois:	UNIVERSITY OF CHICAGO, Chicago
	UNIVERSITY OF ILLINOIS, Urbana
Indiana:	PURDUE UNIVERSITY, Lafayette
Iowa:	UNIVERSITY OF IOWA, Iowa City
Massachusetts:	HARVARD UNIVERSITY, Cambridge
Minnesota:	UNIVERSITY OF MINNESOTA, Minneapolis
Ohio:	OHIO STATE UNIVERSITY, Columbus
Pennsylvania:	UNIVERSITY OF PENNSYLVANIA, Philadelphia
	UNIVERSITY OF PITTSBURGH, Pittsburgh
Washington:	UNIVERSITY OF WASHINGTON, Seattle

For inspection and possible contract by the War Department for Area and Language Training in the Army Specialized Training Program.

California:	POMONA COLLEGE, Pomona
	STANFORD UNIVERSITY, Stanford
	UNIVERSITY OF CALIFORNIA, Berkeley
Colorado:	UNIVERSITY OF DENVER, Denver
Illinois:	UNIVERSITY OF CHICAGO, Chicago
Indiana:	INDIANA UNIVERSITY, Bloomington
Iowa:	UNIVERSITY OF IOWA, Iowa City
Maryland:	JOHNS HOPKINS UNIVERSITY, Baltimore
Massachusetts:	HARVARD UNIVERSITY, Cambridge
Michigan:	UNIVERSITY OF MICHIGAN, Ann Arbor
Minnesota:	UNIVERSITY OF MINNESOTA, Minneapolis
New Jersey:	PRINCETON UNIVERSITY, Princeton
New York:	CORNELL UNIVERSITY, Ithaca
Ohio:	OHIO STATE UNIVERSITY, Columbus
Pennsylvania:	UNIVERSITY OF PITTSBURGH, Pittsburgh
Washington:	UNIVERSITY OF WASHINGTON, Seattle
Wisconsin:	UNIVERSITY OF WISCONSIN, Madison

For inspection and possible contract by the War Department for Pre-Medical Training:

California:	PACIFIC UNION COLLEGE, Angwin
	STANFORD UNIVERSITY, Stanford
	UNIVERSITY OF CALIFORNIA, Berkeley
Colorado:	UNIVERSITY OF DENVER, Denver
Connecticut:	YALE UNIVERSITY, New Haven
Dist. of Col:	GEORGETOWN UNIVERSITY, Washington
Illinois:	UNIVERSITY OF CHICAGO, Chicago
	UNIVERSITY OF ILLINOIS, Urbana

X-11155

(Over)

ADVANCE RELEASE

ADVANCE RELEASE - For SUNDAY Papers, February 14, 1943
McKinney - WMC - 2036

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

PM-4316

A supplemental list of 51 colleges and universities approved for utilization by the War and Navy Departments for specialized war training programs was announced today by the Joint Committee for the Selection of Non-Federal Educational Institutions.

The committee is composed of three representatives each from the Army, the Navy, and the War Manpower Commission. Dr. E. C. Elliott, chief of Professional and Technical Training, Bureau of Training, War Manpower Commission, is chairman.

The Joint Committee, by agreement between the War Department, the Navy Department, and the War Manpower Commission, selects the non-federal educational institutions for the war training programs. The actual contracts will be let by the War and Navy Departments only to those institutions whose facilities prove acceptable to the designated branch of the armed services and to whom the proposed contracts are acceptable.

A list of 283 colleges and universities was approved on Saturday February 6. The latest announcement of the Joint Committee brings the total number of colleges and universities with which the Army and Navy may negotiate contracts for the training of specialists in technical courses to 334.

The Committee will continue to approve other institutions and in some cases additional training programs for institutions already approved. Therefore, no institution not approved up to the present time should conclude that its facilities will not be used. Representatives of institutions are advised not to make special pleas for their particular institutions, as all available facilities are being canvassed.

The committee's announcement, in full, follows:

"The Joint Committee for the Selection of Non-Federal Educational Institutions this week approved a number of additional placements of war training programs in colleges and universities. This is the second list of approvals and is supplementary to the one released on February 7.

"It is anticipated that there will be further lists of approvals ready for release each week during the next few months."

(over)

X-10180

This week's list follows:

To the War Department for training centers for WAAC trainees

Kentucky:	EASTERN KENTUCKY STATE TEACHERS COLLEGE, Richmond
Pennsylvania:	BRYN MAWR COLLEGE, Bryn Mawr
	EDINBORO STATE TEACHERS COLLEGE, Edinboro
	FRIENDS SCHOOL, West Town
	HERSHEY JUNIOR COLLEGE, Hershey
	INDIANA STATE TEACHERS COLLEGE, Indiana
	JUNIATA COLLEGE, Huntingdon
	KUTZTOWN STATE TEACHERS COLLEGE, Kutztown
	MANSFIELD STATE TEACHERS COLLEGE, Mansfield
	MILLERSVILLE STATE TEACHERS COLLEGE, Millersville
	PENN HALL JUNIOR COLLEGE, Chambersburg
	SHIPPENSBURG STATE TEACHERS COLLEGE, Shippensburg
Texas:	MARY HARDIN-BAYLOR COLLEGE, Belton
Virginia:	EMORY AND HENRY COLLEGE, Emory

To the War Department for Army Postal Service training

Pennsylvania:	WEST CHESTER STATE TEACHERS COLLEGE, West Chester

To the War Department for Basic Training in the Army Specialized Program

California:	POMONA COLLEGE, Claremont
	UNIVERSITY OF CALIFORNIA AT LOS ANGELES, Los Angeles
	UNIVERSITY OF SAN FRANCISCO, San Francisco
Dist. of Col:	GEORGETOWN UNIVERSITY, Washington
Georgia:	UNIVERSITY OF GEORGIA, Athens
Massachusetts:	BOSTON UNIVERSITY, Boston
Mississippi:	UNIVERSITY OF MISSISSIPPI, University
New York:	FORDHAM UNIVERSITY, New York
	NIAGARA UNIVERSITY, Niagara Falls
	ST. BONAVENTURE COLLEGE & SEMINARY, St. Bonaventure
Ohio:	OHIO UNIVERSITY, Athens
Oregon:	UNIVERSITY OF OREGON, Eugene
Pennsylvania:	DUQUESNE UNIVERSITY, Pittsburgh
	PENNSYLVANIA MILITARY COLLEGE, Chester
South Dakota:	UNIVERSITY OF SOUTH DAKOTA, Vermillion
Texas:	BAYLOR UNIVERSITY, Waco
Wisconsin:	RIPON COLLEGE, Ripon
	ST. NORBERT COLLEGE, West De Pere

To the War Department for the training of Army Aviation Cadets

Arizona:	UNIVERSITY OF ARIZONA, Tucson
Iowa:	IOWA WESLEYAN COLLEGE, Mt. Pleasant
Kansas:	KANSAS STATE TEACHERS COLLEGE, Pittsburgh
Minnesota:	ST. CLOUD STATE TEACHERS COLLEGE, St. Cloud
Mississippi:	SUNFLOWER JUNIOR COLLEGE, Moorhead
Missouri:	WASHINGTON UNIVERSITY, St. Louis
New York:	NIAGARA UNIVERSITY, Niagara University
	ROCHESTER ATHENAEUM & MECHANICS INSTITUTE, Rochester
	ROCHESTER BUSINESS INSTITUTION, Rochester

X-10180

Ohio:	CAPITOL UNIVERSITY, Columbus
Oregon:	EASTERN OREGON COLLEGE OF EDUCATION, La Grande
Pennsylvania:	BUCKNELL UNIVERSITY JUNIOR COLLEGE, Wilkes Barre
	SUSQUEHANNA UNIVERSITY, Selingsgrove
	WAYNESBURG COLLEGE, Waynesburg
South Carolina:	THE CITADEL, Charleston
Tennessee:	SOUTHWESTERN, Memphis
Utah:	BRANCH AGRICULTURAL COLLEGE, Cedar City
West Virginia:	WEST VIRGINIA WESLEYAN COLLEGE, Buckhannon

To the War Department for training Women Aides to Ordnance Engineers

Michigan:	UNIVERSITY OF MICHIGAN, Ann Arbor

To the Navy Department for Basic Training on the Navy General College Program

California:	UNIVERSITY OF CALIFORNIA AT LOS ANGELES, Los Angeles
Indiana:	UNIVERSITY OF NOTRE DAME, Notre Dame
Massachusetts:	COLLEGE OF THE HOLY CROSS, Worcester
North Carolina:	UNIVERSITY OF NORTH CAROLINA, Chapel Hill
Texas:	BAYLOR UNIVERSITY, Waco

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OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

Advance Release: For Sunday Papers, February 7, 1943 PM-4305

A statement giving the initial list of non-federal educational institutions, (schools, colleges and universities), approved for utilization by the War and Navy Departments for the specialized training of men and women needed for the Armed Forces was issued today by the Joint Committee (War Department, Navy Department, War Manpower Commission) For the Selection of Non-Federal Educational Institutions. A total of 281 separate educational institutions is included on the list.

In making its list public, the joint committee cautioned that the institutions included in the initial statement represent only a portion of the total number of educational institutions which eventually will be approved for specialized training for the armed forces. It stated that many applications for placement on the approved list have been received from other schools and colleges upon which action has not yet been taken.

The statement of the committee and the list of institutions is attached.

Recently the Army and the Navy, with the approval of the Chairman of the War Manpower Commission, announced plans for the utilization of the Nation's educational facilities and personnel for the specialized training of men needed by the Armed Forces. A Joint Committee has been created with authority to select non-Federal educational institutions for the war training programs. This Committee is composed of three representatives from the Army, three from the Navy, and three from the War Manpower Commission. The Committee will operate under rules and regulations prescribed by the Chairman of the War Manpower Commission after consultation with the Secretary of War and the Secretary of the Navy.

The Committee has approved the first groups of institutions for the placement of the indicated training programs. It must be clear, however, that the actual contracts will be let only to those institutions whose facilities prove acceptable to the designated branch of the Armed Services and to whom the proposed contracts are acceptable.

The Committee will continue to approve other institutions and in some cases additional training programs for institutions already approved. Every institution in the country is being considered for possible use. Therefore, no institution not approved up to the present time should conclude that its facilities will not be used. Representatives of institutions are advised not to make special pleas for their particular institutions, as all of the available facilities are now being canvassed.

All contracts made by the Army and Navy for training before the creation of the Committee will continue in force. The two Armed Forces have between 600 and 700 such training projects already operating in non-Federal institutions. Most of these are in colleges and universities. When contracts expire, their renewal or replacement will clear through the Joint Committee:

The placements approved to date are as follows:

To the War Department for training Engineers

Alabama:	ALABAMA POLYTECHNIC INSTITUTE, Auburn
	UNIVERSITY OF ALABAMA, University
Alaska:	UNIVERSITY OF ALASKA, College
Arizona:	UNIVERSITY OF ARIZONA, Tucson
Arkansas:	UNIVERSITY OF ARKANSAS, Fayetteville
California:	STANFORD UNIVERSITY, Stanford University
	UNIVERSITY OF CALIFORNIA, San Francisco
	UNIVERSITY OF SANTA CLARA, Santa Clara
Colorado:	COLORADO SCHOOL OF MINES, Golden
	COLORADO STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Ft. Collins
	UNIVERSITY OF DENVER, Denver
Connecticut:	UNIVERSITY OF CONNECTICUT, Storrs
	YALE UNIVERSITY, New Haven
Delaware:	UNIVERSITY OF DELAWARE, Newark
Dist. of Col.:	GEORGE WASHINGTON UNIVERSITY, Washington
	CATHOLIC UNIVERSITY OF AMERICA, Washington
	HOWARD UNIVERSITY, Washington
Florida:	UNIVERSITY OF FLORIDA, Gainesville
Georgia:	GEORGIA SCHOOL OF TECHNOLOGY, Atlanta
Idaho:	UNIVERSITY OF IDAHO, Moscow
Illinois:	ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago
	UNIVERSITY OF ILLINOIS, Urbana
Indiana:	PURDUE UNIVERSITY, Lafayette
	ROSE POLYTECHNIC INSTITUTE, Terre Haute
Iowa:	IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Ames
	UNIVERSITY OF IOWA, Iowa City
Kansas:	KANSAS STATE COLLEGE OF AGRICULTURE AND APPLIED SCIENCE, Manhattan
	UNIVERSITY OF KANSAS, Lawrence
Kentucky:	UNIVERSITY OF KENTUCKY, Lexington
Louisiana:	LOUISIANA STATE UNIVERSITY, University
Maine:	UNIVERSITY OF MAINE, Orono
Maryland:	JOHNS' HOPKINS UNIVERSITY, Baltimore
	UNIVERSITY OF MARYLAND, College Park
Massachusetts:	HARVARD UNIVERSITY, Cambridge
	MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge
	NORTHEASTERN UNIVERSITY, Boston
Michigan:	MICHIGAN COLLEGE OF MINING AND TECHNOLOGY, Houghton
	MICHIGAN STATE COLLEGE OF AGRICULTURE AND APPLIED SCIENCE, East Lansing
	UNIVERSITY OF DETROIT, Detroit
	UNIVERSITY OF MICHIGAN, Ann Arbor
Minnesota:	UNIVERSITY OF MINNESOTA, Minneapolis
Mississippi:	MISSISSIPPI STATE COLLEGE, State College
Missouri:	UNIVERSITY OF MISSOURI, Columbia
	WASHINGTON UNIVERSITY, St. Louis
	MISSOURI SCHOOL OF MINES & METALLURGY, Rolla
Montana:	MONTANA STATE COLLEGE, Bozeman
Nebraska:	UNIVERSITY OF NEBRASKA, Lincoln
Nevada:	UNIVERSITY OF NEVADA, Reno
New Hampshire:	UNIVERSITY OF NEW HAMPSHRERE, Durham
New Jersey:	NEWARK COLLEGE OF ENGINEERING, Newark
	PRINCETON UNIVERSITY, Princeton
	RUTGERS UNIVERSITY, New Brunswick

To the War Department for training Engineers - Continued J.C.P.R.-1

New Mexico:	NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS, State College
	NEW MEXICO SCHOOL OF MINES, Socorro
New York:	POLYTECHNIC INSTITUTE OF BROOKLYN, Brooklyn
	CLARKSON COLLEGE OF TECHNOLOGY, Potsdam
	COLLEGE OF THE CITY OF NEW YORK, New York
	COOPER UNION OF TECHNOLOGY, New York
	CORNELL UNIVERSITY, Ithaca
	MANHATTAN COLLEGE, New York
	NEW YORK STATE COLLEGE OF CERAMICS (ALFRED UNIVERSITY), Alfred
	NEW YORK UNIVERSITY, New York
	PRATT INSTITUTE, Brooklyn
	SYRACUSE UNIVERSITY, Syracuse
North Carolina:	NORTH CAROLINA STATE COLLEGE OF AGRICULTURE & ENGINEERING, Raleigh
North Dakota:	NORTH DAKOTA AGRICULTURAL COLLEGE, Fargo
	UNIVERSITY OF NORTH DAKOTA, Grand Forks
Ohio:	OHIO STATE UNIVERSITY, Columbus
	UNIVERSITY OF AKRON, Akron
	UNIVERSITY OF CINCINNATI, Cincinnati
Oklahoma:	OKLAHOMA AGRICULTURE AND MECHANICAL COLLEGE, Stillwater
	UNIVERSITY OF OKLAHOMA, Norman
	UNIVERSITY OF TULSA, Tulsa
Oregon:	OREGON STATE COLLEGE, Corvallis
Pennsylvania:	CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh
	DREXEL INSTITUTE OF TECHNOLOGY, Philadelphia
	LAFAYETTE COLLEGE, Easton
	LEHIGH UNIVERSITY, Bethlehem
	PENNSYLVANIA STATE COLLEGE, State College
	UNIVERSITY OF PENNSYLVANIA, Philadelphia
	UNIVERSITY OF PITTSBURGH, Pittsburgh
	VILLANOVA COLLEGE, Villanova
Rhode Island:	RHODE ISLAND STATE COLLEGE, Kingston
South Carolina:	CLEMSON AGRICULTURAL COLLEGE, Clemson
	THE CITADEL, Charleston
South Dakota:	SOUTH DAKOTA COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Brookings
Tennessee:	UNIVERSITY OF TENNESSEE, Knoxville
	VANDERBILT UNIVERSITY, Nashville
Texas:	AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS, College Station
	TEXAS TECHNOLOGICAL COLLEGE, Lubbock
Utah:	UNIVERSITY OF UTAH, Salt Lake City
	UTAH STATE AGRICULTURAL COLLEGE, Loga
Vermont:	NORWICH UNIVERSITY, Northfield
	UNIVERSITY OF VERMONT, Burlington
Virginia:	VIRGINIA MILITARY INSTITUTE, Lexington
	VIRGINIA POLYTECHNIC INSTITUE, Blacksburg
Washington:	STATE COLLEGE OF WASHINGTON, Pullman
	UNIVERSITY OF WASHINGTON, Seattle
West Virginia:	WEST VIRGINIA UNIVERSITY, Morgantown
Wisconsin:	UNIVERSITY OF WISCONSIN, Madison
Wyoming:	UNIVERSITY OF WYOMING, Laramie

To the War Department for training Engineers - Continued J.C.P.R.-1

New Mexico:	NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS, State College
	NEW MEXICO SCHOOL OF MINES, Socorro
New York:	POLYTECHNIC INSTITUTE OF BROOKLYN, Brooklyn
	CLARKSON COLLEGE OF TECHNOLOGY, Potsdam
	COLLEGE OF THE CITY OF NEW YORK, New York
	COOPER UNION OF TECHNOLOGY, New York
	CORNELL UNIVERSITY, Ithaca
	MANHATTAN COLLEGE, New York
	NEW YORK STATE COLLEGE OF CERAMICS (ALFRED UNIVERSITY), Alfred
	NEW YORK UNIVERSITY, New York
	PRATT INSTITUTE, Brooklyn
	SYRACUSE UNIVERSITY, Syracuse
North Carolina:	NORTH CAROLINA STATE COLLEGE OF AGRICULTURE & ENGINEERING, Raleigh
North Dakota:	NORTH DAKOTA AGRICULTURAL COLLEGE, Fargo
	UNIVERSITY OF NORTH DAKOTA, Grand Forks
Ohio:	OHIO STATE UNIVERSITY, Columbus
	UNIVERSITY OF AKRON, Akron
	UNIVERSITY OF CINCINNATI, Cincinnati
Oklahoma:	OKLAHOMA AGRICULTURE AND MECHANICAL COLLEGE, Stillwater
	UNIVERSITY OF OKLAHOMA, Norman
	UNIVERSITY OF TULSA, Tulsa
Oregon:	OREGON STATE COLLEGE, Corvallis
Pennsylvania:	CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh
	DREXEL INSTITUTE OF TECHNOLOGY, Philadelphia
	LAFAYETTE COLLEGE, Easton
	LEHIGH UNIVERSITY, Bethlehem
	PENNSYLVANIA STATE COLLEGE, State College
	UNIVERSITY OF PENNSYLVANIA, Philadelphia
	UNIVERSITY OF PITTSBURGH, Pittsburgh
	VILLANOVA COLLEGE, Villanova
Rhode Island:	RHODE ISLAND STATE COLLEGE, Kingston
South Carolina:	CLEMSON AGRICULTURAL COLLEGE, Clemson
	THE CITADEL, Charleston
South Dakota:	SOUTH DAKOTA COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Brookings
Tennessee:	UNIVERSITY OF TENNESSEE, Knoxville
	VANDERBILT UNIVERSITY, Nashville
Texas:	AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS, College Station
	TEXAS TECHNOLOGICAL COLLEGE, Lubbock
Utah:	UNIVERSITY OF UTAH, Salt Lake City
	UTAH STATE AGRICULTURAL COLLEGE, Loga
Vermont:	NORWICH UNIVERSITY, Northfield
	UNIVERSITY OF VERMONT, Burlington
Virginia:	VIRGINIA MILITARY INSTITUTE, Lexington
	VIRGINIA POLYTECHNIC INSTITUE, Blacksburg
Washington:	STATE COLLEGE OF WASHINGTON, Pullman
	UNIVERSITY OF WASHINGTON, Seattle
West Virginia:	WEST VIRGINIA UNIVERSITY, Morgantown
Wisconsin:	UNIVERSITY OF WISCONSIN, Madison
Wyoming:	UNIVERSITY OF WYOMING, Laramie

To the War Department for the training of Army Aviation Cadets

Alabama:	BIRMINGHAM SOUTHERN COLLEGE, Birmingham
	TUSKEGEE INSTITUTE, Tuskegee
	UNIVERSITY OF ALABAMA, Tuscaloosa
Arizona:	ARIZONA STATE TEACHERS COLLEGE, Tempe
Arkansas:	ARKANSAS STATE TEACHERS COLLEGE, Jonesboro
	HENDERSON STATE TEACHERS COLLEGE, Arkadelphia
	OUACHITA COLLEGE, Arkadelphia
	UNIVERSITY OF ARKANSAS, Fayetteville
California:	COMPTON JUNIOR COLLEGE, Compton
	LONG BEACH JUNIOR COLLEGE, Long Beach
	PASADENA JUNIOR COLLEGE, Pasadena
Colorado:	COLORADO STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Ft. Collins
	UNIVERSITY OF DENVER, Denver
Connecticut:	YALE UNIVERSITY, New Haven
Florida:	UNIVERSITY OF FLORIDA, Gainesville
	UNIVERSITY OF TAMPA, Tampa
Georgia:	BERRY COLLEGE, Mt. Berry
Idaho:	COLLEGE OF IDAHO, Caldwell
Illinois:	AUGUSTANA COLLEGE, Rock Island
	ELMHURST COLLEGE, Elmhurst
	JAMES MILLIKIN UNIVERSITY, Decatur
	KNOX COLLEGE, Galesburg
	SHURTLEFF COLLEGE, Alton
	SOUTHERN ILLINOIS NORMAL UNIVERSITY, Carbondale
	WEATON COLLEGE, Weaton
Indiana:	BUTLER UNIVERSITY, Indianapolis
	INDIANA CENTRAL COLLEGE, Indianapolis
	INDIANA UNIVERSITY, Bloomington
Iowa:	COE COLLEGE, Cedar Rapids
	IOWA STATE TEACHERS COLLEGE, Cedar Falls
	MORNINGSIDE COLLEGE, Sioux City
Kansas:	FORT HAYS KANSAS STATE COLLEGE, Hays
	KANSAS STATE TEACHERS COLLEGE, Emporia
	KANSAS STATE COLLEGE OF AGRICULTURE AND APPLIED SCIENCE, Manhattan
	MUNICIPAL UNIVERSITY OF WICHITA, Wichita
Kentucky:	CENTRE COLLEGE, Danville
Louisiana:	CENTENARY COLLEGE, Shreveport
	LOUISIANA STATE UNIVERSITY, Baton Rouge
Maine:	COLBY COLLEGE, Waterville
Maryland:	WESTERN MARYLAND COLLEGE, Westminster
Massachusetts:	AMERICAN INTERNATIONAL COLLEGE, Springfield
	MASSACHUSETTS STATE COLLEGE, Amherst
Michigan:	ALBION COLLEGE, Albion
	FORDSON JUNIOR COLLEGE, Dearborn
	MICHIGAN COLLEGE OF MINING AND TECHNOLOGY, Houghton
	MICHIGAN STATE COLLEGE OF AGRICULTURE AND APPLIED SIENCE, East Lansing
	MICHIGAN STATE NORMAL COLLEGE, Ypsilanti
Minnesota:	CONCORDIA COLLEGE, Moorhead
	ST. JOHN'S UNIVERSITY, Collegeville
	UNIVERSITY OF MINNESOTA, Minneapolis
Mississippi:	MISSISSIPPI STATE COLLEGE, State College

To the War Department for the training of Army Aviation Cadets- Continued

Missouri:	JEFFERSON COLLEGE, St. Louis
	NORTHEAST MISSOURI STATE TEACHERS COLLEGE, Kirksville
	ROCKHURST COLLEGE, Kansas City
	ST. LOUIS UNIVERSITY, St. Louis
	SOUTHWEST MISSOURI STATE TEACHERS COLLEGE, Springfield
	UNIVERSITY OF MISSOURI, Columbia
Montana:	BILLINGS POLYTECHNIC INSTITUTE, Polytechnic
	MONTANA STATE COLLEGE, Bozeman
	MONTANA STATE UNIVERSITY, Missoula
	NORTHERN MONTANA COLLEGE, Havre
Nebraska:	CREIGHTON UNIVERSITY, Omaha
	HASTINGS COLLEGE, Hastings
	NEBRASKA STATE TEACHERS COLLEGE, Wayne
	UNIVERSITY OF OMAHA, Omaha
Nevada:	UNIVERSITY OF NEVADA, Reno
New Hampshire:	ST. ANSELM'S COLLEGE, Manchester
New York:	CANISIUS COLLEGE, Buffalo
	HAMILTON COLLEGE, Clinton
	NEW YORK STATE COLLEGE FOR TEACHERS, Albany
	SYRACUSE UNIVERSITY, Syracuse
	UNIVERSITY OF BUFFALO, Buffalo
North Carolina:	DAVIDSON COLLEGE, Davidson
	PRESBYTERIAN JUNIOR COLLEGE FOR MEN, Maxton
	NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, Raleigh
North Dakota:	JAMESTOWN COLLEGE, Jamestown
	UNIVERSITY OF NORTH DAKOTA, Grand Forks
Ohio:	FENN COLLEGE, Cleveland
	HIRAM COLLEGE, Hiram
	KENT STATE UNIVERSITY, Kent
	MARIETTA COLLEGE, Marietta
	MT. UNION COLLEGE, Alliance
	MUNICIPAL UNIVERSITY, Toledo
	UNIVERSITY OF AKRON, Akron
	UNIVERSITY OF CINCINNATI, Cincinnati
	WESTERN RESERVE UNIVERSITY, Cleveland
	WITTENBERG COLLEGE, Springfield
	XAVIER UNIVERSITY, Cincinnati
Oklahoma:	CAMERON STATE AGRICULTURAL COLLEGE, Lawton
	NORTHERN OKLAHOMA JUNIOR COLLEGE, Tonkawa
	NORTHWESTERN STATE COLLEGE, Alva
	OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE, Stillwater
	OKLAHOMA BAPTISE UNIVERSITY, Shawnee
	OKLAHOMA CITY UNIVERSITY, Oklahoma City
	UNIVERSITY OF TULSA, Tulsa
Pennsylvania:	ALBRIGHT COLLEGE, Reading
	ALLEGHENY COLLEGE, Meadville
	DICKINSON COLLEGE, Carlisle
	GENEVA COLLEGE, Beaver Falls
	GETTYSBURG COLLEGE, Gettysburg
	GROVE CITY COLLEGE, Grove City
	LAFAYETTE COLLEGE, Easton
	ST. VINCENT COLLEGE, Latrobe
	UNIVERSITY OF PITTSBURGH, Pittsburgh
	WASHINGTON & JEFFERSON COLLEGE, Washington

To the War Department for the training of Army Aviation Cadets - Continued

South Carolina:	CLEMSON AGRICULTURAL COLLEGE, Clemson
	ERSKINE COLLEGE, Due West
	FURMAN UNIVERSITY, Greenville
	PRESBYTERIAN COLLEGE, Clinton
	WINTHROP COLLEGE, Rock Hill
	WOFFORD COLLEGE, Spartanburg
South Dakota:	BLACK HILLS TEACHERS COLLEGE, Spearfish
	HURON COLLEGE, Huron
	SOUTH DAKOTA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Brookings
Tennessee:	CUMBERLAND UNIVERSITY, Lebanon
	LINCLON MEMORIAL UNIVERSITY, Harrogate
	MARYVILLE COLLEGE, Maryville
	MEMPHIS STATE COLLEGE, Memphis
	STATE TEACHERS COLLEGE, Johnson City
	STATE TEACHERS COLLEGE, Murfreesboro
	TENNESSEE COLLEGE FOR WOMEN, Murfreesboro
	TENNESSEE POLYTECHNIC INSTITUTE, Cookeville
	UNION UNIVERSITY, Jackson
	UNIVERSITY OF CHATTANOOGA, Chattanooga
	UNIVERSITY OF TENNESSEE, Knoxville
	VANDERBILT UNIVERSITY, Nashville
Texas:	AUSTIN COLLEGE, Sherman
	COLLEGE OF MARSHALL, Marshall
	JOHN TARLETON AGRICULTURAL COLLEGE, Stephenville
	SOUTHWEST TEXAS STATE TEACHERS COLLEGE, San Marcos
	TEXAS AGRICULTURAL AND MECHANICAL COLLEGE, College Station
	COLLEGE OF MINES AND METALLURGY, El Paso
	TEXAS TECHNOLOGICAL COLLEGE, Lubbock
	TEXAS WESLEYAN COLLEGE, Fort Worth
Utah:	UTAH STATE AGRICULTURAL COLLEGE, Logan
Vermont:	NORWICH UNIVERSTIY, Northfield
	UNIVERSITY OF VERMONT, Burlington
Virginia:	LYNCHBURG COLLEGE, Lynchburg
Washginton:	CENTRAL WASHINGTON COLLEGE, Ellensburg
	ST. MARTIN'S COLLEGE, Lacey
	STATE COLLEGE OF WASHINGTON, Pullman
West Virginia:	CONCORD STATE TEACHERS COLLEGE, Athens
	MARSHALL COLLEGE, Huntington
	WEST VIRGINIA UNIVERSITY, Morgantown
Wisconsin:	BELOIT COLLEGE, Beloit
	CARROLL COLLEGE, Waukesha
	CENTRAL STATE TEACHERS COLLEGE, Stevens Point
	STATE TEACHERS COLLEGE, Eauclaire
	STATE TEACHERS COLLEGE, Oshkosh
	UNIVERSITY OF WISCONSIN (Branches at Milwaukee & Racine)

To the War Department for training centers for W.A.A.C. trainees

Arkansas:	ARKANSAS POLYTECHNIC COLLEGE, Russellville
	ARKANSAS STATE TEACHERS COLLEGE, Conway
California:	FRESNO STATE COLLEGE, Fresno
	WHITTIER COLLEGE, Whittier
Colorado:	UNIVERSITY OF DENVER, Denver
New Mexico:	EASTERN NEW MEXICO COLLEGE, Portales
	LORETTA ACADEMY, Las Cruces

To the War Department for training centers for W.A.A.C. trainees - Continued

	LORETTA ACADEMY, Santa Fe
	NEW MEXCIO HIGHLANDS UNIVERSITY, Las Vegas
	NEW MEXCIO STATE TEACHERS COLLEGE, Silver City
	ST. MICHAELS ACADEMY, Santa Fe
	SANDIA SCHOOL, Albuquerque
	SPANISH-AMERICAN NORMAL, El Rico
North Carolina:	ELON COLLEGE, Elon
Oklahoma:	BETHANY-PENIEL COLLEGE, Bethany
	EAST CENTRAL STATE COLLEGE, Ada
	NORTHEASTERN STATE COLLEGE, Tahlequah
	NORTHWESTERN STATE COLLEGE, Alva
	OHLAHOMA CITY UNIVERSITY, Oklahoma City
	OKLAHOMA COLLEGE FOR WOMEN, Chicksha
	PHILLIPS UNIVERSITY, Enid
Oregon:	OREGON COLLEGE OF EDUCATION, Monmouth
Tennessee:	GEORGE PEABODY COLLEGE FOR TEACHERS, Nashville
Texas:	EAST TEXAS STATE TEACHERS COLLEGE, Commerce
	TEXAS STATE COLLEGE FOR WOMEN, Denton
	STEPHEN F. AUSTIN STATE TEACHERS COLLEGE, Nacogdoches
	SUL-ROSS STATE TEACHERS COLLEGE, Alphine
	WEST TEXAS STATE TEACHERS COLLEGE, Canyon

To the War Department for Basic Training in the Army Specialized Program
(All these now have Army R.O.T.C. units)

Alabama:	TUSKEGEE INSTITUTE, Tuskegee, Institute
Dist. of Co.	HOWARD UNIVERSITY, Washington
North Carolina:	NEGRO AGRICULTURAL AND TECHNICAL COLLEGE, Greensboro
Ohio:	WILBERFORCE UNIVERSITY, Wilberforce
Texas:	PRAIRIE VIEW STATE COLLEGE, Prairie View
Virginia:	HAMPTON INSTITUTE, Hampton
West Virginia:	WEST VIRGINIA STATE COLLEGE, Institute

To the War Department for pre-meteorological training for the Army Air Corps

Missouri: WASHINGTON UNIVERSITY, St. Louis

To the War Department for training officers for the Quartmaster's Corps

Massachusetts: HARVARD UNIVERSITY, Cambridge

To the War Department for training in Navigation

Massachusetts: HARVARD UNIVERSITY, Cambridge

To the War Department for training students in Japanese Language

Michigan: UNIVERSITY OF MICHIGAN, Ann Arbor

To the War Department for training in advanced technical subjects

Ohio: UNIVERISTY OF DAYTON, Dayton

To the War Department for training Auto Mechanics

Virginia: HAMPTON INSTITUTE, Hampton

To the Navy Department for training Engineers

California:	CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena
	UNIVERSITY OF CALIFORNIA, San Francisco
	UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles
Colorado:	UNIVERSITY OF COLORADO, Boulder
Connecticut:	YALE UNIVERSITY, New Haven
Georgia:	GEORGIA SCHOOL OF TECHNOLOGY, Atlanta
Illinois:	ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago
	NORTHWESTERN UNIVERSITY, Evanston
	UNIVERSITY OF ILLINOIS, Urbana
Indiana:	PURDUE UNIVERSITY, Lafayette
Iowa:	IOWA STATE AGRICULTURAL AND MECHANICAL COLLEGE, Ames
Kansas:	UNIVERSITY OF KANSAS, Lawrence
Kentucky:	UNIVERSITY OF LOUISVILLE, Louisville
Louisiana	TULANE UNIVERSITY OF LOUISIANA, New Orleans
Massachusetts:	MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge
	TUFTS COLLEGE, Medford
	WORCESTER POLYTECHNIC INSTUTE, Worcester
Michigan:	UNIVERSITY OF MICHIGAN, Ann Arbor
Minnesota:	UNIVERSITY OF MINNESOTA, Minneapolis
Missouri:	UNIVERSITY OF MISSOURI, Columbia
Montana:	MONTANA SCHOOL OF MINES, Butte
New Hampshire:	DARTMOUTH COLLEGE, Hanover
New Jersey:	STEVENS INSTITUTE OF TECHNOLOGY, Hoboken
New Mexico:	UNIVERSITY OF NEW MEXICO, Albuquerque
New York:	COLUMBIA UNIVERSITY, New York
	CORNELL UNIVERSITY, Ithaca
	RENSSELAER POLYTECHNIC INSTITUTE, Troy
	UNION COLLEGE, Schonectady
	UNIVERSITY OF ROCHESTER, Rochester
	WEBB INSTITUTE OF NAVAL ARCHITECTURE, New York
North Carolina:	DUKE UNIVERSITY, Durham
Ohio:	CASE SCHOOL OF APPLIED SCIENCE, Cleveland
Oklahoma:	UNIVERSITY OF OKLAHOMA, Norman
Pennsylvania:	BUCKNELL UNIVERSITY, Lewisburg
	CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh
	PENNSYLVANIA STATE COLLEGE, State College
	SWARTHMORE COLLEGE, Swarthmore
	UNIVERSITY OF PENNSYLVANIA, Philadelphia
Rhode Island:	BROWN UNIVERSITY, Providence
South Carolina:	UNIVERSITY OF SOUTH CAROLINA, Columbia
South Dakota:	SOUTH DAKOTA STATE SCHOOL OF MINES, Rapid City
Texas:	RICE INSTITUTE, Houston
	SOUTHERN METHODIST UNIVERSITY, Dallas
	UNIVERSITY OF TEXAS, Austin
Virginia:	UNIVERSITY OF VIRGINIA, Charlottesville
Washington:	UNIVERSITY OF WASHINGTON, Seattle
Wisconsin:	MARQUETTE UNIVERSITY, Milwaukee
	UNIVERSITY OF WISCONSIN, Madison

To the Navy Department for training Women Reserves (WAVES)

New York: HUNTER COLLEGE OF THE CITY OF NEW YORK, (Bronx Campus) New York

To the Navy Department for training Chaplains

Virginia: COLLEGE OF WILLIAM AND MARY, Williamsburg

To the Navy Department for a School of Recognition

Ohio: OHIO STATE UNIVERSITY, Columbus

Dr. E. C. Elliot, chief of professional and technical training, Bureau of Training, War Manpower Commission, is chairman of the Joint Committee.

Davis - WMC-787

Luxemburg
Jour copy

OFFICE OF WAR INFORMATION

WAR MANPOWER COMMISSION

For Immediate Release
Wednesday, December 30, 1942

PM-4248

The appointment of Lawrence A. Appley, vice-president of Vick Chemical Company, of New York, as chief of the War Manpower Commission's Bureau of Placement was announced Tuesday by Paul V. McNutt, chairman of the commission.

Mr. Appley, who has been acting as an expert consultant on personnel to the Secretary of War, will have authority over the functions of the United States Employment Service, Mr. McNutt said, and will be in charge of industrial, agricultural, professional, and government employment. The transfers of workers will come under him. Glen Pocockway is Chief of Agric. & Ind'l Employment Div. (Carson's old job) - RM

A graduate of Ohio Wesleyan and Colgate universities, Mr. Appley has been with several large companies as an advisor on personnel problems. Before he went with the Vick Chemical Company he was for 11 years Educational Director for Socony-Vacuum. He is now vice-president of the American Management Association.

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X-8118

October 1, 1943

WAR MANPOWER COMMISSION

Adequacy of Labor Supply in Important Labor Market Areas

The attached list classifies important labor market areas according to adequacy of labor supply. The list includes all labor market areas in which there is a city of 25,000 or more, or in which special labor supply problems exist. The 350 areas are classified in four categories as follows:

Classification	Number of Areas	Definition of Classification
Group I	72	Areas of current acute labor shortage
Group II	112	Areas of labor stringency and those anticipating a labor shortage within six months
Group III	101	Areas in which a slight labor surplus will remain after six months
Group IV	65	Areas in which a substantial labor surplus will remain after six months

This classification is based on regular reports of employer requirements received by the War Manpower Commission, estimates of anticipated military requirements, and estimates of presently available and potential labor supply. Special consideration is given to qualitative or nonstatistical reports on current local conditions, regularly received from the locality itself reflecting the labor market experience of public and private officials possessing intimate knowledge of local labor supply problems.

It will be noted that the present classification list reveals substantial changes in the number of areas classified in Groups III and IV in comparison with previous listings. These changes result primarily from changes in the classification structure rather than from changes in labor market conditions. Revision in classification structure was necessitated by changes in the reporting program.

This classification, based on labor supply and demand information, may be used for a variety of purposes, for example, the planning of special recruitment programs and policies by the War Manpower Commission. The classification of areas for purposes of allocation of new production facilities and supply contracts, and other purposes requiring the identification of labor shortage and surplus areas.

REGION I

Group I	Group II	Group III	Group IV
Bridgeport, Conn.	Bath, Maine	Athol, Mass.	Concord, N.H.
Hartford, Conn.	Boston-Quincy-Hingham, Mass.	Bangor, Maine	Lawrence, Mass.
Meriden, Conn.	Claremont, N.H.-Springfield, Vt.	Brockton, Mass.	Manchester, N.H.
New Bedford, Mass.	Middletown, Conn.	Burlington, Vt.	
New Britain-Bristol, Conn.	New Haven, Conn.	Danbury, Conn.	
Newport, R.I.	New London-Groton, Conn.	Fall River, Mass.	
Portland, Maine	North Adams, Mass.	Fitchburg, Mass.	
Waterbury, Conn.	Portsmouth, N.H.	Greenfield, Mass.	
	Providence-Pawtucket-Woonsocket, R.I.	Haverhill, Mass.	
	Springfield-Holyoke-Northampton, Mass.	Lewiston, Maine	
	Stamford, Conn.	Lowell, Mass.	
	Torrington, Conn.	Lynn-Salem, Mass.	
		Nashua, N.H.	
		Norwalk, Conn.	
		Norwich, Conn.	
		Pittsfield, Mass.	
		Taunton, Mass.	
		Worcester, Mass.	

REGION II

Group I	Group II	Group III	Group IV
Buffalo-Niagara Falls, N.Y.	Albany-Schenectady-Troy, N.Y.	Auburn, N.Y.	Kingston, N.Y.
Massena, N.Y.	Amsterdam-Gloversville, N.Y.	Batavia, N.Y.	New York Metropolitan Region, N.Y.
	Geneva, N.Y.	Binghamton, N.Y.	Poughkeepsie, N.Y.
	Rochester, N.Y.	Dunkirk, N.Y.	Watertown, N.Y.
	Syracuse, N.Y.	Elmira, N.Y.	
	Utica-Rome, N.Y.	Ithaca, N.Y.	
		Jamestown, N.Y.	
		Newburgh, N.Y.	
		Sidney, N.Y.	

REGION III

Group I	Group II	Group III	Group IV
Allentown, Pa.	Aliquippa, Pa.	Lebanon, Pa.	Altoona, Pa.
Trenton, N.J.	Chambersburg, Pa.	Long Branch, N.J.	Atlantic City, N.J.
Wilmington, Del.	Erie, Pa.	Morristown, N.J.	Berwick, Pa.
	Harrisburg, Pa.	New Castle, Pa.	Johnstown, Pa.
	Lancaster, Pa.	Washington, Pa.	Scranton, Pa.
	Newark, N.J.	York, Pa.	Williamsport, Pa.
	Paterson, N.J.		
	Perth Amboy, N.J.		
	Philadelphia, Pa.		
	Pittsburgh, Pa.		
	Reading-Pottstown, Pa.		
	Somerville, N.J.		

REGION IV

Group I	Group II	Group III	Group IV
Baltimore, Md.	Burlington, N.C.	Asheville, N.C.	Cumberland, Md.
Elizabeth City, N.C.	Charlotte, N.C.	Charleston, W.Va.	Huntington, W.Va.
Elkton, Md.	Richmond, Va.	Clarksburg-Fairmont-Morgantown, W. Va.	Roanoke, Va.
Hampton Roads, Va.	Wilmington, N.C.	Danville, Va.	Wheeling, W.Va.
Petersburg, Va.		Durham-Raleigh, N.C.	
Spruce Pine, N.C.		Hagerstown, Md.	
Washington, D.C.		Lynchburg, Va.	
		Parkersburg, W.Va.	
		Point Pleasant, W.Va.	
		Rocky Mount-Wilson, N.C.	
		Winston-Salem-Greensboro, N.C.	

REGION V

Group I	Group II	Group III	Group IV
Adrian, Mich.	Battle Creek, Mich.	Cincinnati, Ohio	Lexington, Ky.
Akron, Ohio	Benton Harbor, Mich.	Fostoria-Findlay-Tiffin, Ohio	Owensboro, Ky.
Detroit, Mich.	Canton-Massillon-Alliance, Ohio	Grand Rapids, Mich.	Paducah, Ky.
Monroe, Mich.	Cleveland, Ohio	Hamilton-Middletown, Ohio	Portsmouth, Ohio
Muskegon, Mich.	Columbus, Ohio	Jackson, Mich.	Steubenville, Ohio
	Dayton-Springfield, Ohio	Kalamazoo, Mich.	Zanesville, Ohio
	Flint, Mich.	Lansing, Mich.	
	Fremont-Port Clinton, Ohio	Sandusky, Ohio	
	Lima, Ohio	Toledo, Ohio	
	Lorain-Elyria, Ohio		
	Louisville, Ky.		
	Mansfield, Ohio		
	Marion, Ohio		
	Newark, Ohio		
	Piqua-Sidney-Troy, Ohio		
	Pontiac, Mich.		
	Port Huron, Mich.		
	Saginaw-Bay City, Mich.		
	Youngstown-Warren-Sharon, Ohio-Pa.		

REGION VI

Group I	Group II	Group III	Group IV
Anderson, Ind.	Aurora-Elgin, Ill.	Bloomington-Burns City, Ind.	Appleton, Wis.
Evansville, Ind.	Beloit, Wisconsin	Champaign, Ill.	Bloomington, Ill.
Fort Wayne, Ind.	Chicago, Ill.	LaCrosse, Wis.	Danville, Ill.
Gary-Hammond-S. Chicago, Ind.-Ill.	Connersville, Ind.	Lafayette, Ind.	Eau Claire, Wis.
Indianapolis, Ind.	DeKalb, Ill.	Logansport, Ind.	Fond du Lac, Wis.
Racine, Wis.	Kenosha, Wis.	Moline, Ill.	Galesburg, Ill.
South Bend, Ind.	Kokomo, Ind.	Sheboygan, Wis.	Herrin, Ill.
Sterling, Ill.	Madison-Merrimac, Wis.	Waukegan, Ill.	Joliet, Ill.
Sturgeon Bay, Wis.	Manitowoc, Wis.		Kewanee, Ill.
	Marion, Ind.		Marinette, Wis.-Menominee, Mich.
	Michigan City-La Porte, Ind.		Oshkosh, Wis.
	Milwaukee, Wis.		Peoria, Ill.
	Muncie, Ind.		Quincy, Ill.
	Newcastle, Ind.		Terre Haute, Ind.
	Richmond, Ind.		Wausau, Wis.
	Rockford, Ill.		
	Springfield-Decatur, Ill.		

REGION VII

Group I	Group II	Group III	Group IV
Brunswick, Ga.	Atlanta, Ga.	Aberdeen, Miss.	Anniston, Ala.
Charleston, S.C.	Augusta, Ga.	Birmingham, Ala.	Chattanooga, Tenn.
Columbus, Ga.	Florence, Ala.	Columbia, S.C.	Gadsden, Ala.
Jacksonville, Fla.	Knoxville, Tenn.	Greenville, S.C.	Jackson, Miss.
Macon, Ga.	Orlando, Fla.	Huntsville, Ala.	Miami, Fla.
Mobile, Ala.		Kingsport-Bristol, Tenn.	Vicksburg, Miss.
Panama City, Fla.		Memphis, Tenn.	West Palm Beach, Fla.
Pascagoula, Miss.		Meridian, Miss.	
Pensacola, Fla.		Montgomery, Ala.	
Savannah, Ga.		Nashville, Tenn.	
Spartanburg, S.C.		Rome, Ga.	
Tampa, Fla.		Talladega, Ala.	
		Tuscaloosa, Ala.	

REGION VIII

Group I	Group II	Group III	Group IV
Hastings, Nebr.	Austin, Minn.	Burlington, Iowa	Fargo, N. Dak.-Moorhead, Minn.
	Cedar Rapids, Iowa	Dubuque, Iowa	Ottumwa, Iowa
	Clinton, Iowa	Duluth, Minn.-Superior, Wisc.	Rochester, Minn.
	Des Moines, Iowa	Lincoln, Nebr.	
	Grand Island, Nebr.	Mason City, Iowa	
	Newton, Iowa	Minneapolis-St. Paul, Minn.	
	Omaha, Nebr.-Council Bluffs, Iowa	Sioux City, Iowa	
	Sioux Falls, S. Dak.	Waterloo, Iowa	
		Winona, Minn.	

REGION IX

Group I	Group II	Group III	Group IV
Oklahoma City, Okla.	McAlester, Okla.	Kansas City, Mo.	Enid, Okla.
Pine Bluff, Ark.	Tulsa, Okla.	St. Louis, Mo.	Fort Smith, Ark.
Wichita, Kans.			Hutchinson, Kans.
			Joplin, Mo.
			Little Rock, Ark.
			Muskogee, Okla.
			Springfield, Mo.
			St. Joseph, Mo.
			Topeka, Kans.

REGION X

Group I	Group II	Group III	Group IV
Beaumont, Tex.	Brownsville, Tex.	Alexandria, La.	Abilene, Tex.
Dallas, Tex.	Ft. Worth, Tex.	Amarillo, Tex.	Albuquerque, N.Mex.
Galveston, Tex.	Lake Charles, La.	Corpus Christi, Tex.	Austin, Tex.
	New Orleans, La.	Houston, Tex.	Baton Rouge, La.
	Texarkana, Tex.	Laredo, Tex.	El Paso, Tex.
		Lubbock, Tex.	San Angelo, Tex.
		Monroe, La.	Tyler, Tex.
		San Antonio, Tex.	Waco, Tex.
		Shreveport, La.	
		Wichita Falls, Tex.	

REGION XI

Group I	Group II	Group III	Group IV
Butte, Mont.	Boise, Idaho	Billings, Mont.	
Cheyenne, Wyo.	Great Falls, Mont.	Colorado Springs, Colo.	
Ogden, Utah	Pocatello, Idaho	Denver, Colo.	
Price, Utah		Pueblo, Colo.	
Provo, Utah			
Rock Springs, Wyo.			
Salt Lake City, Utah			
Wallace-Kellogg, Idaho			

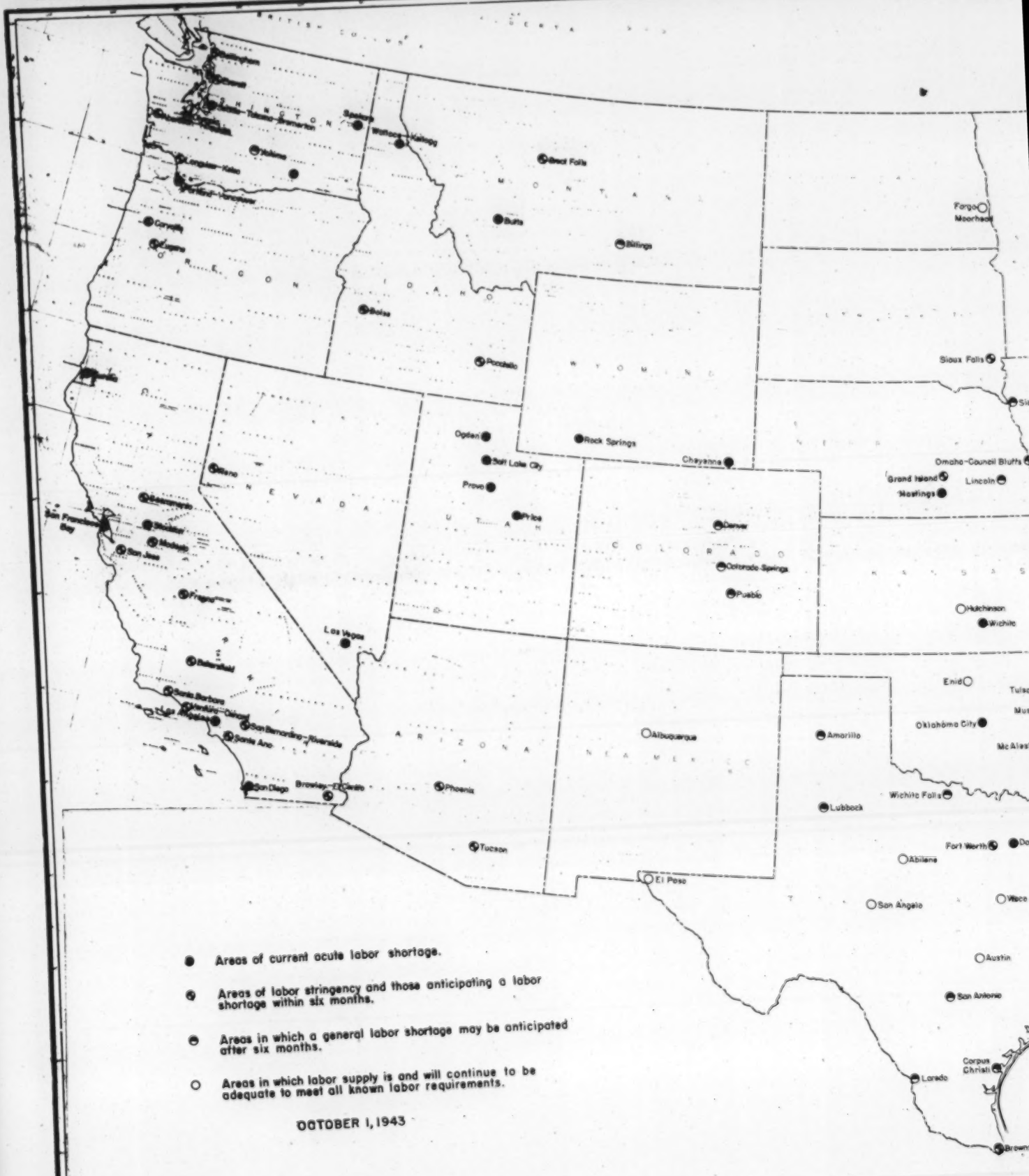
REGION XII

Group I	Group II	Group III	Group IV
Eureka, Calif.	Aberdeen-Hoquiam, Wash.	Olympia, Wash.	
Las Vegas, Nev.	Bakersfield, Calif.	Yakima, Wash.	
Los Angeles, Calif.	Bellingham, Wash.	All other areas in California not elsewhere listed are in Group III	
Portland, Ore.-Vancouver, Wash.	Brawley-El Centro, Calif.		
San Diego, Calif.	Corvallis, Ore.		
San Francisco Bay, Calif.	Eugene, Ore.		
Seattle-Tacoma-Bremerton, Wash.	Everett, Wash.		
Spokane, Wash.	Fresno, Calif.		
Stockton, Calif.	Longview-Kelso, Wash.		
	Modesto, Calif.		
	Phoenix, Ariz.		
	Reno, Nev.		
	Sacramento, Calif.		
	San Bernardino-Riverside, Calif.		
	San Jose, Calif.		
	Santa Ana, Calif.		
	Santa Barbara, Calif.		
	Tucson, Ariz.		
	Ventura-Oxnard, Calif.		

TERRITORY OF HAWAII — GROUP I

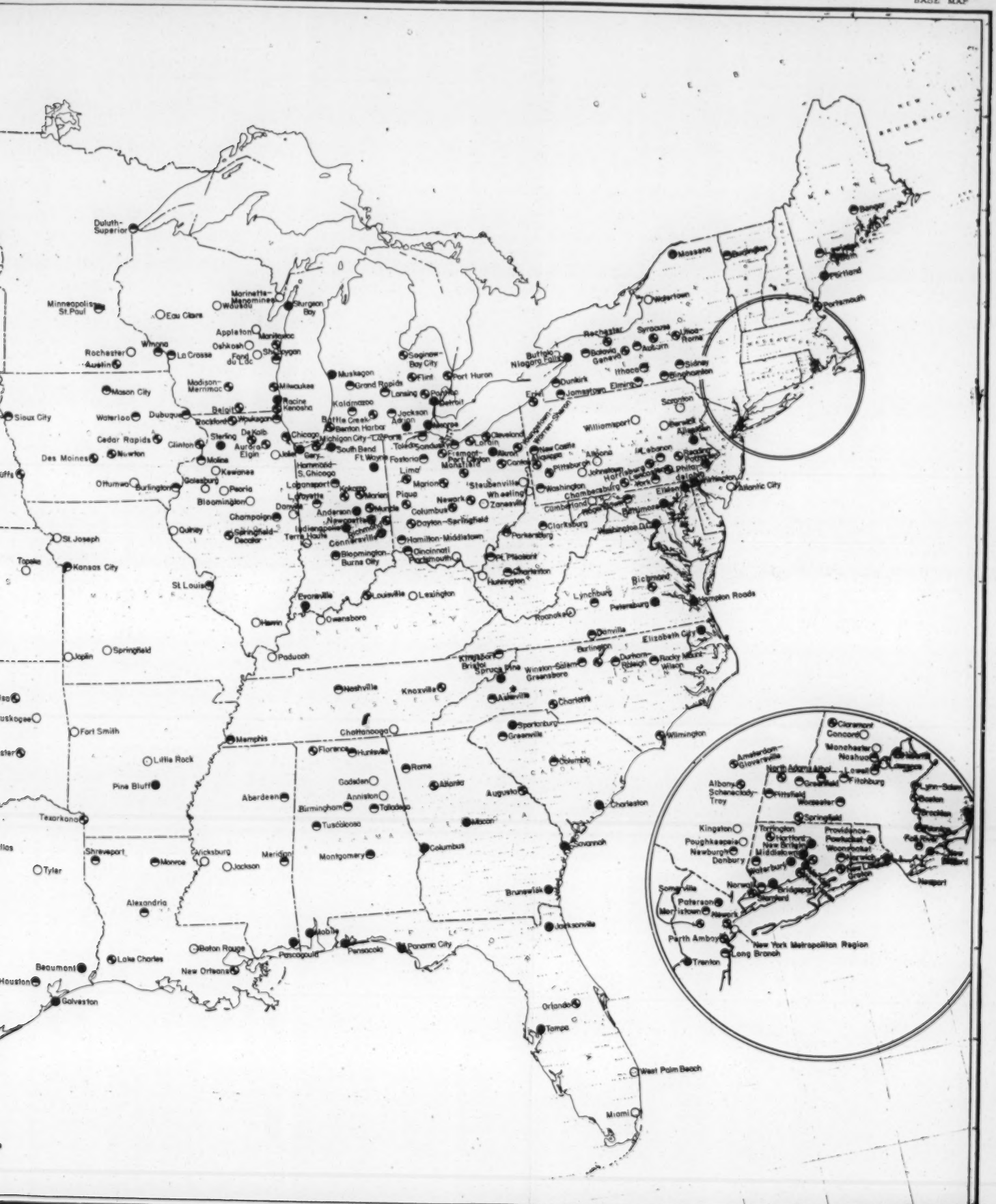
ADEQUACY OF LABOR SUPPLY IN IMP

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



MPORTANT LABOR MARKET AREAS

UNITED STATES
BASE MAP



7-2336 P9 nabu-final WAR MANPOWER COMMISSION
REPORTS & ANALYSIS SERVICE